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DEADLINE D8

In so far as the facts in this statement are within my knowledge, they are true. In so far as the facts in this statement are not within my direct knowledge, they are true to the best of my knowledge and belief.

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1 INTRODUCTION

- 1 This submission provides the ExA with the rolling position statement on the *Boswell* legal case as requested in the ExA's question ExQ3_Q2.1.1.
- 2 This submission provides comments on the revised CEMP document provided at deadline 7 as [REP7-150] and the 9.8 Environmental Statement Addendum [REP7-154].
- 3 An error is reported in how the applicant has transferred a data from the revised CEMP to the revised ES (ie [REP7-154]).
- 4 Serious concerns are raised about the CEMP and lawfulness of using data from it as source a data for the EIA assessment of carbon emissions.

2 POSITION STATEMENT (D8): *R (Boswell) v Secretary of State for Transport [2023] EWHC 1710*

- 5 This section is the rolling position statement on the *Boswell* appeal case as requested in the ExA's question ExQ3_Q2.1.1.
- 6 "Nil return"

3 ISH12

- 7 I wish at this stage to note that I had been anticipating joining an ISH on "Climate Change and Carbon Emissions" at some stage during the examination, as it had been identified as a Principle Issue. I signed up to ISHs ready to do so before the agendas for each ISH were clear. Unfortunately, I did not realise that the CEMP was on the agenda for ISH12 at sub-agenda-item 4(b)(j) as the overall topic of ISH12 was "Social, Economic and Project Delivery Matters".
- 8 Whilst I apologise for not spotting the CEMP agenda item, I am not sure that the detail of the comments which I now make below on the revised CEMP could have been fully addressed at the ISH12. (I also suggest that five minutes at an Open Floor Hearing would not have sufficed either.)
- 9 I acknowledge that the examination is principally conducted on the basis of written representations, and the issues which I have raised are best dealt with by written submission, this D8 submission included.
- 10 More generally, I am satisfied that my position has been articulated fully through the written submission process.

11 I just wish to affirm to the ExA that I am content to continue with written submissions, and I hope, respectfully, that this clears up any misunderstanding.

4 UPDATED CARBON AND ENERGY MANAGEMENT PLAN (CEMP)

12 I note that the applicant has updated the Carbon and Energy Management Plan (“CEMP” [REP7-150]) and in particular CBN04, the project’s “maximum level of construction carbon emissions, is now committed to as 1.44 million tCO₂e reduced from 1.763 million tCO₂e (Table E.1 “Register of carbon commitments” in the revised REP7-150).

13 I note also that the applicant has also updated the 9.8 Environmental Statement Addendum [REP7-154] to reflect the revised CEMP changes including a new Appendix E in REP7-154 “Chapter 15: Climate”. A new Table E.2 is presented with the new construction emissions figure of 1,444,500 tCO₂e (although the distribution of the emissions across carbon budgets made by the applicant is actually erroneous as explained below).

14 Table E.2 is under a new section “Assessment of likely significant effects”, and a revised significance assessment is made at paragraph E.3.9 on the basis of the data in it.

15 The new figure under the revised CBN04 is not a genuine “worst case” for the construction emissions, and this renders the EIA assessment unlawful as I now explain.

4.1 EIA Assessment of construction carbon emissions: background

16 The applicant has posited that the carbon emissions presented in Chapter 15 [APP-153] of the Environmental Statement are “worst case” enumerations. For construction emissions, this is based upon the CEMP as described at 15.3.31 at:

*“The Carbon and Energy Management Plan (Application Document 7.19) stipulates the maximum level of construction phase emissions in delivering the Project. Appendix D of the Carbon and Energy Management Plan identifies possible GHG emission reduction measures to meet this requirement, representing one of numerous possible pathways to achieve this maximum level of emissions. **The actual route will be determined by the Contractors and their designers but whichever pathway they select, Contractors must at least match this maximum level of construction phase emissions.** This is considered a worst-case, reflecting the Rochdale Envelope. The worst-case scenario represents current best-practice and results because it can only be delivered by incorporating an extensive range of commercially available, low carbon technologies and approaches”. {emphasis added}*

17 The security of the construction emissions “maximum level” is therefore dependent upon a “black box” in which there are an array of sub-contracts and contractual arrangements, and “possible pathways”. The “maximum level” depends upon contracts being guaranteed to deliver the necessary emission reductions in a very complex environment.

- 18 The applicant has described this as a “very powerful carbon reduction tool” at ISH12 [EV-085g/p.121/l.13-14¹]. However, it is only theoretically a very powerful tool – subject to failure and risk in a complex environment. It may potentially be innovative, but it has yet to be proven. However, it is being presented as if it has already been proven and without risk assessment. Critically, the internal workings of it are not available to the examination which is why I refer to it as a “black box”. The construction emission enumerations from it have been transferred into the Environmental Statement for assessment purposes.
- 19 I now examine the security of this “maximum level” (ie the CBN04 figure) as it is derived from the CEMP and is used for EIA assessment in the Environmental Statement.

4.2 *Lack of Security of the CEMP and implications for the EIA assessment*

- 20 The CEMP has a "Register of carbon commitments" [latest REP7-150/Table E.12]. These are the 22 carbon commitments CBN01-CBN22. These form part of the Register of Environmental Actions and Commitments (see definition at REP7-150/PDFp25) and form parts of the Code of Construction Practice (Application Document 6.3, ES Appendix 2.2, latest version [REP7-122]).
- 21 REP7-122/2.4 specifies "Management plans supporting EMP2", and the CEMP is at 2.4.2(e). 2.4.2 items are described as follows: *“The following plans are required by the draft DCO (and will therefore be secured). Although they will not form part of EMP2 (or be required under the terms of EMP2 following its approval), they will support the EMP2, in accordance with DCO Schedule 2.”* So the CEMP is not part of EMP2 - so the CEMP is just a supportive plan.
- 22 Security of the CEMP here is assumed on the basis that the CEMP is a plan required by the DCO, and it will “therefore be secured”. Again, the assumption is that the details of the CEMP black box (ie the details which make up the CBN04 figure from numerous sub-contracts and details therein) are fully proven.
- 23 At the ISH12 [transcript: EV-085g], the applicant explained how it considered this security would be achieved: in summary, the second iterations of the CEMP would be developed by sub-contractors [EV-085g/p.120/l.23-27²], and that carbon reduction would be achieved by “pushing down through the supply chain” [EV-085g/p.121/l.12-13].
- 24 At [EV-085g/p.122/l.14-15], the ExA asked the critical question *“But if they [the sub-contractor] don’t achieve what they need to achieve, what happens then? What’s the penalty?”*
- 25 The applicant responded that it would be seen as a “contract failure” and dealt with by contract penalties. When challenged that it would actually be a penalty on the environment,

¹ Meaning EV-085g, page 121, lines 13-14 - the same format will be used for subsequent references to the ISH transcript.

² Meaning EV-085g, page 120, line 23-27 0 the same format will be used for subsequent references.

the applicant responded with an extremely optimistic speech [EV-085g/p.122/l.20-33] including “*If, for any reason, there is a contract defect and they don’t achieve that, then it can be dealt with [with] the normal contract process for dealing with defects, but we think that’s highly unlikely.*”

- 26 The applicant has provided no evidence of risk assessment of the likelihood although they make the claim that it will be close to zero (“highly unlikely”). The actual likelihood could only be determined by a proper risk assessment, and that would require the black box to be opened up so the details inside, commitments in each sub-contract, could each be risk assessed. If the applicant considers that the likelihood of contract failure on decarbonisation (across all sub-contracts) is close to zero, then it should provide its risk assessed evidence for this claim.
- 27 Currently the claim is made, as if an act of faith, and then carried over into the EIA assessment (with assumptions of the CBN04 figure being “worst-case”).
- 28 A number of matters arise from this:
- (A) The applicant has now generated a revised CEMP with a commitment [REP7-150/Table E.1/CBN04] that net construction emissions do not exceed 1.44 million tCO₂e.
 - (B) This figure is fed back into the Environment Statement for the GHG assessment purposes at REP7-154/Table E.2.
 - (C) As explained above, the applicant considers that the data from the CEMP represents the “worst case” enumeration of construction emissions.
 - (D) Therefore, the applicant is also suggesting that the GHG assessment based on the data in REP7-154/Table E.2 should be considered to be the “worst case”.
 - (E) The applicant has admitted that there may be contract failure [EV-085g/p.122]. In this context, contract failure means a contractual condition to deliver a certain carbon emissions savings fails. The impact of such a decarbonisation failure, at the lower level of a sub-contract, would then ripple-up to the overall project which could quite possibly mean that, in fact, the CBN04 value of 1.44 million tCO₂e would not be achieved.
 - (F) The applicant’s position is that carbon reduction can be “push[ed] down through the supply chain” but it has not presented to the examination the other side of the coin, the decarbonisation failures (or contract “defects”) rippling back up the supply chain. Nor has it provided any risk-assessment of this.
 - (G) The applicant gave no reassurance, at ISH12 that such contract failure could be 100% avoided: quite the reverse, the applicant acknowledged it was a possibility, which if it occurred would be dealt with by contract penalties. No evidence has

been provided that there is any risk assessment of the chances of a contract failure rather the applicant said it thought it “highly unlikely”, and the ExA, SoS and IPs are expected to believe that with no further evidence.

- (H) In fact a proper risk assessment of CBN04 would look at all the sub-contracts, and the carbon reduction elements with them, and risk assess each of them: no results of such a risk assessment has been presented to the examination.
- (I) Note that there are two types of risk in this. The first is risks in the construction project itself with the example given of “the need for more ground improvement than was anticipated” at footnote 16 [REP7-150]). This type of risk accumulates to the 16% risk of the total construction emissions (REP7-150/Plate D.2) based on the risk register. This type of risk could be considered as secondary decarbonisation failures where some quantification of the construction itself is overrun (but any related decarbonisation processes work as expected). The security of CBN04 would be in jeopardy when this type of risk exceeded 16%.
- (J) The second type of risks comes from an underlying decarbonisation method itself failing to deliver 100% as expected (and could be considered primary decarbonisation failures) – for example the use of “lower carbon” concrete production methods delivering less decarbonisation than expected due to new technology processes not delivering as rapidly as expected (per unit of concrete). Both types of risk need to be considered.
- (K) These key points emerge from this:
- The CEMP is in fact not secure, and no risk assessment has been provided by applicant of its security. The risks to proposed decarbonisation technologies delivering in full, or not, has not be considered at all. Therefore, CBN04 is in fact not secured, and amounts to an aspiration at this stage.
 - As a result, the data derived from the CEMP (ie the CBN04 of 1.44 MtCO₂e figure) cannot be reliably used as a worst case for the EIA assessment of the construction emissions. Therefore, the Environmental Statement does not comply with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the “**2017 Regulations**”).
 - The applicant has also made much of CBN04 being a “legally binding commitment”. The applicant’s response at the ISH12 which presents a decarbonisation failure at any scale amounting to a breach of contract condition(s) and resolvable via contract penalty clauses indicates that CBN04 is in fact not legally binding in terms of securing decarbonisation. There may be contractual consequences for a

decarbonisation failure, but the decarbonisation itself – the key process of relevance here - is not legally protected in the way being suggested.

(L) A further point which arises is that the original CEMP (with CBN04 of 1.763 MtCO₂e) is subject to the same potential failings as the carbon reduction savings are “pushed down” the supply chain. So it is also doubtful whether the original 1.763 MtCO₂e figure for construction emissions can be taken as a “worst case”: again, no risk assessment of the figure has been given. It is, therefore, also doubtful that the original Environmental Statement complies with the 2017 Regulations. (With respect to this, I later describe how the applicant has already claimed in the submitted CEMP (ie [APP-522] considerable construction emissions decarbonisation as compared to the CEMP submitted in a previous planning application for the scheme in 2020).

4.3 Issues with the submitted CEMP

- 29 By submitted CEMP, I mean [APP-522] as submitted with the planning application. Table D.3 provides a list of possible decarbonisation approaches. In total, these are estimated to be able to provide -898,000 tCO₂e decarbonisation.
- 30 For background context, the applicant submitted a previous application. The CEMP³ in this application from 2020 reported the construction emissions as 2,031,607 tCO₂e (and reported in the Environmental Statement⁴ for this earlier application as 2,028,230 tCO₂e).
- 31 Many of the same decarbonisation methods are referred to in “Table 1.6 Emissions reductions achieved” of the 2020 CEMP as those in Table D.3 of the submitted CEMP. (They are not enumerated in the 2020 CEMP.) However, they have been enumerated for their possible decarbonisation effect in Table D.3, totalling a possible 898,000 tCO₂e of decarbonisation.
- 32 The submitted CEMP reduces the construction emissions by 268,640 tCO₂e (from 2,031,607 tCO₂e to 1,762,967 tCO₂e) against the 2020 CEMP. This represents 29.9% of the 898,000 tCO₂e of decarbonisation methods listed at Table D.3. Whilst this might be a simplification of the process, no clear evidence has been given of how the 268,640 tCO₂e reduction has been achieved. For example, how this (considerable) quantum of decarbonisation has been achieved in terms of each of the line items in Table D.3.

³ As retrieved from FoI request “Carbon assessment of Lower Thames Crossing for 60 year appraisal” at

⁴ As retrieved from FoI request “Carbon assessment of Lower Thames Crossing for 60 year appraisal” at

- 33 With respect to the construction emissions figure in the submitted CEMP which was then taken forward to the ES for EIA assessment, the ExA, SoS and IPs are being expected to believe that 268,640 tCO₂e of decarbonisation has been achieved (or 29.9% of the decarbonisation methods listed at Table D.3) since the 2020 application. It is simply not possible to know whether this is correct or not as the details of the submitted CEMP (and where the emissions savings are actually being made ie which line items under Table D.3), are being presented as a black box.
- 34 The 2017 Regulations at Schedule 4, Paragraph 6 (under “Information for Inclusion in Environmental Statements” requires a “... *description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved*”.
- 35 The forecasting methods in this case appear to be in potential contractual conditions, many of which not even negotiated yet, across a very complex project which the applicant has admitted provides no guarantee of security (as decarbonisation failures are treated as contract defects but not corrected). Further the applicant has not been prepared to offer “details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved”. Rather when asked about decarbonisation not being achieved, the applicant said at the ISH12 “we think that’s highly unlikely”: no justification was given for the claim.

4.4 Issues with the revised CEMP

- 36 The quantum of the additional decarbonisation reported in the revised CEMP is complicated by the correction to the reporting made as a result of the “Reallocation of land use change emissions”. “Plate F.1 Change in construction emissions” shows the projected gain in decarbonisation as c.600,000 tCO₂. I derive this figure by reading Plate F.1 – the quantum of the red box – as the figures does not appear to be given elsewhere.
- 37 So, the revised CEMP is claimed to reduce the construction emissions by 600,000 tCO₂e against the submitted CEMP. This represents 66.82% of the 898,000 tCO₂e of decarbonisation methods listed at Table D.3. As above, it is simply not possible to know whether this is correct or not as the details of the CEMP are being presented as a black box, so the ExA, SoS and IPs have no idea where the emissions reductions are being made, nor verification and risk assessment that they can be actually delivered. As “Appendix F Updated carbon emissions data and commitments” in the revised CEMP gives no further decarbonisation methods, parties are left assume that those in Table D.3 are the methods being employed⁵.

⁵ It is acknowledged that some very basic information is given by “Plate F.2 Construction emissions by source” in the revised CEMP of which overall “sources” are being decarbonised (eg: steel). However this does not provide the detail required and is difficult to see the different colours or gauge the different decarbonisation processes. Further the categories shown in Plate F.2 do not link directly to the decarbonisation methods listed at Table D.3.

38 The forecasting methods for this projected gain of 600,000 tCO₂e decarbonisation appears again are in sub-contractual details across a very complex project which the applicant has admitted provides no guarantee of security. Further the applicant has not been prepared to offer “details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved”. Rather when asked about decarbonisation not being achieved, the applicant said at the ISH12 “we think that’s highly unlikely”: no justification was given for the claim.

39 It is worth noting that between the 2020 CEMP and the revised CEMP, 96.74% of the Table D.3 reductions (898,000 tCO₂e) are being claimed by the Applicant (29.92% + 66.82% = 96.74%). This would appear to leave little or no head room for further carbon reductions, although the applicant claims this possibility.

4.5 Non-legality of using CEMP based data for EIA assessment

40 The applicant has taken data based upon complex contracts and sub-contracts, not yet agreed, and provided for the purpose of a plan (which in fact is not legally binding, but merely contractually punitive, see above) and transferred the data to form the basis of an EIA assessment of the carbon emissions of the scheme (the construction emissions and solus operation emissions being combined in the Environmental Statement at Table E.2 of [REP7-154]).

41 The submitted, nor the revised, CEMPs provide no detail as to the forecasting methods used for the construction emissions, and as explained above have produced the figures where the detail is hidden in a black box with no risk assessment. Nor have they given any details of which decarbonisation methods (from Table D.3) which make up the emission reductions claimed. Given this situation, **I submit that Schedule 4, Paragraph 6 of the 2017 Regulations has been breached.**

4.6 Notification of error in Environmental Statement following revised CEMP

42 As noted above, the applicant has also updated the 9.8 Environmental Statement Addendum [REP7-154] to reflect the revised CEMP changes including a new Appendix E in REP7-154 “Chapter 15: Climate”. A new Table E.2 is presented, and a revised EIA significance assessment is made at paragraph E.3.9.

43 With respect to the applicant, the data for the construction emissions in new Table E.2 does not appear to evolve logically from the previous data presented at earlier versions of the Environmental Statement. I submit that this is a fundamental error, and rather surprising (to say the least) to find at this stage in the process. This is shown below where I tabulate the data presented for construction emissions at the various stages/documents (I am just reproducing for each case the one row “Construction” which is the relevant data):

	Project phase	Modelled total GHG emissions over relevant carbon budgets (tCO ₂ e) (DS* scenario)	Net Project GHG emissions over relevant carbon budgets (tCO ₂ e) (DS*-DM*)	Fourth (2023 to 2027)	Fifth (2028 to 2032)	Sixth (2033 to 2037)
APP-153/Table 15.17	Construction	1,762,967	1,762,967	1,148,319	614,648	N/A
↕ Original Table reproduced ↕						
REP2-040/ Table D1.1	Construction	1,762,967	1,762,967	1,148,319	614,648	N/A
↕ Table adjusted for two-year delay ↕						
REP2-040/ Table D1.2	Construction	1,762,967	1,762,967	440,234	1,322,733	N/A
↕ Table adjusted for lower overall construction emissions (as per revised CEMP) ↕						
REP7-154/Table E.2	Construction	1,444,500	1,444,500	940,884	503,616	N/A

Table 1: Evolution of applicant’s construction emissions figures in the Environmental Statement

44 It appears that the revised construction emissions (as per the revised CEMP) have been allocated to the carbon budgets in Table E.2 on the basis of the original construction timetable, and not the revised timetable with the two-year delay, previously notified at deadline D2.

45 The applicant must clarify if this is the case, or, if it considers that there is no error, explain the data at REP7-154/Table E.2.

4.7 Correction of error in Environmental Statement following revised CEMP

46 I will now work through an approximate correction of this error. Before starting, I note that I previously provided ball park figures for the annual construction emissions at REP3-148/Table 1. The applicant stated that they couldn’t comment on this [REP6-094/2.1.14]. At REP7-234/97, I responded that in order to enumerate, then assess, and then decide on the construction emissions (a process which the Secretary of State will ultimately have to carry out under the 2017 Regulations), that it is necessary to have working figures for the construction emissions in (1) the 4CB, (2) the 5CB, and (3) the 2030 NDC year. In this case, the 5CB figures are important as the error being corrected has led to the 5CB assessment being based on an underestimate in the deadline D7 revised Environmental Statement.

47 As a general point, the applicant must accept my estimates as satisfactory ballparks for the indicative purposes for which I use them, or provide its own figures. To be clear, the “can’t comment” position is not an acceptable one for the applicant to take any longer. I have provided fair estimates and indicated my assumptions. Either the applicant can provide

better estimates, or accept mine as sufficiently fit-for-purpose estimates of the construction emissions by year for the purposes of assessment.

- 48 In line with providing fair estimates, I now adjust my REP3-148/Table 1 for the updated CEMP to provide estimates for the construction emissions in (1) the 4CB, (2) the 5CB, and (3) the 2030 NDC year based on the revised CEMP data.
- 49 I do this with the caveat that, as explained above, I consider there is no credible evidence that the revised CEMP figure (ie the CBN04 1.44 MtCO₂e) is actually the “worst case” scenario of the construction emissions, nor that it has been derived in a way which is compliant with the requirement for transparent forecasting methods in the 2017 regulations. In fact, the lack of risk assessment of the decarbonisation methods and the fact that CEMP is effectively speculating that these methods being delivered 100% on the future by sub-contractors in a very complex environment, the evidence is that the figure cannot possibly be the worst-case scenario at all and is subject to un-risk-assessed multiple points of failure (individual contract “defects”). I, therefore, generate these estimates in order to have working figures based on the applicant’s data only for indicative purposes.
- 50 To do this, I equally apply the reduction in construction emissions across the five construction years as represented by my existing REP3-148/Table 1 figures whose derivation I explained in footnote 4 of REP3-148 (now reproduced in the footnote below).

CONSTRUCTION EMISSIONS tCO ₂ e	2027	2028	2029	2030	2031
Annual ballparks ⁶ as in REP3-148/Table 1	440,234	400,000	302,733	310,000	310,000
Revised annual ballparks (equal 18% reduction each year)	360,709	327,743	248,047	254,001	254,001
Construction in 4th carbon budget	360,709				
Construction in 2030 NDC year				254,001	
Construction in 5th carbon budget					1,083,791

Table 2: Ballpark annual construction emissions (updated from REP3-148/Table 1)

- 51 From this simple estimation, I would expect the 4th carbon budget construction emissions following the revised CEMP to be of the order of 360,000 tCO₂e not 940,884 tCO₂e as in REP7-154/Table E.2, and for the 5th carbon budget of the order of 1,083,791 tCO₂e not 503,616 tCO₂e as in REP7-154/Table E.2. This is the anomaly which the applicant must explain.
- 52 It is now possible to correct the 5th carbon budget data in Table E.2 in [REP7-154]. The construction emissions should be 1,083,791 tCO₂e (on my assumptions) and the solus operation emissions 270,569 tCO₂e. This gives a total 1,354,360 tCO₂e which is 0.079%

⁶ Table 15.17 allocated 614,648 tCO₂e to the two final years of construction (2028 and 2029). I have allocated 310,000 tCO₂e to each of 2030 and 2031 following the two-year delay. Table D1.2 allocates 440,234 tCO₂ to 2027, the first year of construction on the new timescales. I have provided guestimates for the remaining two years in Table 1. The total adds up to 1,762,967 tCO₂e as before.

of the 5th Carbon budget, not 0.045% as mis-calculated by the applicant due to its error. I submit in any case this is not a lawful figure for assessment as it is based on solus quantification rather than cumulative quantification.

4.8 Updated CEMP figures and my case for the scheme

53 The issue here is that the Secretary of State must consider the construction emissions for the 4th carbon budget, 5th carbon budget and 2030 NDC as explained in REP7-234 and my other submissions. I have provided fair estimates of the emission for each of these, as indicative examples, although as above I do not consider that these actually are the worst-case figures required by the 2017 regulations, nor do I consider that they comply with the requirement for transparent forecasting of the 2017 regulations. So they are figures for indicative purposes only. It is now really up to the applicant to correct my estimates with its own estimates, or accept my estimates for the purposes of making indicative assessments of the significance of the construction emissions.

54 In REP7-234, section 3, I gave “the essence of my case on the LTC scheme” and quoted estimates for the construction emissions from the original CEMP. So for example, at REP7-234/3.1(B)/Condition (ii)(C), I wrote:

“C. The Applicant then proposes to add approximately a further 300,000 tCO₂e from LTC construction activities in 2030. The only logical condition under which these additional emissions will not risk the sector trajectory at 2030 being met is IF both (1) the missing 22.9MtCO₂e emission reductions are secured in 2030 AND (2) a further 300,000 tCO₂e of Industry emissions reductions are secured in order to accommodate the additional emissions for the LTC construction in that year.”

Following the revised CEMP and my reworked estimates for the 2030 construction emissions, this would now read (only the highlighted changes made approximating 254,001 tCO₂e for 2030 in Table 2 above to 250,000 tCO₂e):

“C. The Applicant then proposes to add approximately a further **250,000 tCO₂e** from LTC construction activities in 2030. The only logical condition under which these additional emissions will not risk the sector trajectory at 2030 being met is IF both (1) the missing 22.9MtCO₂e emission reductions are secured in 2030 AND (2) a further **250,000 tCO₂e** of Industry emissions reductions are secured in order to accommodate the additional emissions for the LTC construction in that year.”

55 Similar adjustments to figures would be applied throughout my previous submissions.

56 **The changes to the figures do not affect my case or conclusions.** The reductions to the construction emissions (overall an 18% reduction after the reallocation of land use change emissions) in the revised CEMP do not alter my submission [REP7-234] that the Secretary of State cannot reach a clearly reasoned conclusion on the NNNPS 5.18 test because

Condition (i) (*IF the risks to the delivery of those carbon targets and budgets are fully understood*) and Condition (ii) (*IF the risks to the delivery of those carbon targets and budgets being compounded by the development of the scheme are fully understood*) cannot be met. The numbers in the example above (which is an example under **condition (ii)** of REP7-234/3.1(B)) have changed slightly, but the quantum of additional emission space to be found on top of the emission reductions yet to be found for the Industry sector⁷ – a quarter of a million tonnes of CO₂ in a single year – is still very large. This is before considering that the revised CEMP (and even the submitted CEMP figure) may not be the worst-case figures in any case.

57 At this stage, I do not propose to alter every example previously given although I note that it will be helpful to the ExA for me to do so before the close of the examination⁸. Before doing that, it is necessary for the applicant to:

(A) confirm that the data at REP7-154/Table E.2 needs to be recalculated to align with the two-year delay (ie correct the error reported), and;

(B) provide the applicant’s best estimate of how the revised CEMP construction figure breaks down annually, and what the resulting composite figures are for (1) the 4CB, (2) the 5CB, and (3) the 2030 NDC year, or accept my estimates above in Table 2 for that data.

4.9 Summary of revised CEMP and EIA assessment of construction emissions

58 The revised construction emissions figure in CBN04 is not a genuine, nor legitimate, “worst case” estimate of the construction emissions. This is because it depends upon speculative forecasting of the delivery of decarbonisation strategies across a complex array of sub-contracts, not yet fully negotiated. Whilst the “pushing down” of emissions reductions through the supply chain has been presented by the applicant as the crux of its CEMP, the rippling up of decarbonisation risks through the supply chain has not been addressed through credible risk assessment.

59 CBN04 purports to provide a “maximum level” for the construction emissions, but the figure for this level is effectively provided as a black box in which an array of sub-contracts and contractual arrangements, and decarbonisation commitments, is hidden from risk assessment and scrutiny.

60 The applicant conceded that contract failures (or defects) were possible and would be remedied by contractual penalties which do not provide for the lost emissions reductions. The only conclusion is that (1) the CEMP is in fact not secure, and no risk assessment has been provided by applicant of its security; (2) the data derived from the CEMP (ie the

⁷ As I have explained repeatedly in REP7-323, this does not treat the projected sectoral-based residual emissions as a hard sectoral target. Rather it is a contextualisation of the construction emissions from the LTC.

⁸ Making these changes now would just create confusion if the applicant later provides its best estimate of the revised CEMP construction figures for in (1) the 4CB, (2) the 5CB, and (3) the 2030 NDC year as also requested which are different to mine.

CBN04 of 1.44 MtCO₂e figure) cannot be reliably used as a worst case for the EIA assessment of the construction emissions; and (3) CBN04 is in fact not legally binding.

61 I submit the EIA Regulations are breached in these ways:

(A) The CEMP figure is not the worst-case for the construction emissions, and therefore does not provide a “worst case” for the EIA assessment of carbon emissions;

(B) No information has been given inside the black box, nor of difficulties in compiling the CEMP CBN04 figure. In effect no description of the forecasting methods has been provided for the EIA assessment, breaching Schedule 4, Paragraph 6.

62 The 600,000 tCO₂ of new decarbonisation in the revised CEMP has not been explained at all – except by the applicant’s claim, more an act of faith, that the supply chain and procurement process will fully deliver it. It represents 66.82% of the 898,000 tCO₂e of decarbonisation methods listed at Table D.3 of the CEMP but there is no breakdown as to which methods contribute to it, and also what the risk assessment is of the underlying detail. As this supposed decarbonisation gain is being fed into the EIA assessment, yet with no detail of the forecasting methods, and difficulties with them, this again is a breach of Schedule 4, Paragraph 6.

63 I have had to report an incredibly basic error in the applicant’s revised Environmental Statement. Having adjusted the data at deadline 2 for the two-year delay to the project, the applicant has allocated the revised CEMP data to the old (pre-deadline 2) timeline. This also leads to a severe underestimate of the corresponding emissions in the 5th carbon budget, and the associated solus assessment made.

64 I submit that this error alone calls into question the whole CEMP and revised environmental statement, Chapter 15, and the competence of those who produced and checked it.

5 HYDROGEN

65 The situation over the use of hydrogen by the project remains very confusing.

66 This was compounded by a Press release issued by the applicant on November 29th and appended at Appendix A. The press release says that the applicant is procuring 6 million kilograms (6000 tonnes) of hydrogen to replace 20 million litres of diesel.

67 If the replacing hydrogen has zero carbon intensity, then replacing 20 million litres of diesel would be expected to save 53,600 tCO₂e (as a litre of diesel produces approximate 2.68 kg of CO₂). However, as explained in [REP1-323/section 9] the carbon intensity (as tCO₂e covering all greenhouse gases as equivalents of CO₂) of hydrogen can derive from many sources including upstream methane leakage; CO₂ emissions from gray and blue hydrogen

production; downstream hydrogen leakage. The full lifecycle carbon intensity of the hydrogen being used must be calculated, and compounded across multiple sources if multiple sources are being used. In order to make the EIA assessment of the construction emissions using hydrogen to replace diesel, the indirect emissions embedded in the carbon intensity of the hydrogen must be considered (for example from upstream methane emissions in the hydrogen production).

- 68 The total decarbonisation from the hydrogen procurement exercise in question has to be considered to be very much smaller than the 53,600 tCO₂e calculated assuming zero carbon intensity hydrogen.
- 69 Further, “Plate F.2 Construction emissions by source” of the revised CEMP appears to estimate diesel emissions at c.210,000 tCO₂e in the “original construction emissions” (ie the submitted CEMP, APP-552] and c.70-80,000 tCO₂e in the revised CEMP: these figures are approximate as they can only be approximated from the graph. These figures from Plate F.2 would suggest that the applicant now considers that it secured decarbonisation of diesel in the construction emissions by around c.140,000 tCO₂e.
- 70 If this is the case, then even at zero carbon intensity, the hydrogen procurement can only be expected to deliver around 38% of this saving, apparently already “banked” under CBN04. Given that zero carbon hydrogen is a hypothetical, and the procured hydrogen can be expected to have greater than zero carbon intensity, then the real percentage is smaller.
- 71 The applicant must explain this situation, and answer the following questions:
- (A) What is the carbon intensity, properly calculated for indirect emissions such as upstream methane where applicable, for the hydrogen being procured?
 - (B) Is the procurement intended to provide the entire decarbonisation savings for diesel under Plate F.2 for the revised CBN04?
 - (C) If it is not intended to provide the entire decarbonisation of diesel under CBN04, then what percentage is it intended to provide?
 - (D) How will the remaining decarbonisation of diesel under Plate F.2 for the revised CBN04 be achieved?
- 72 Whilst the above questions might provide some answers to the confusion around hydrogen for the project, it would be preferable if the applicant provided a suitable technical submission on the role of hydrogen that is intended to play in the project, and how that is represented in the CEMP, and how it is accounted for the purposes of EIA assessment of the construction emissions.
- 73 I also note that the Press Release states that “Diesel accounts for around a third of the project's carbon footprint”. This does not appear to be consistent with the CEMP, “Plate

D.2: Construction emissions by source” which gives diesel as 10% of the project emissions. The applicant should explain this too.

- 74 There has been discussion about “greenwashing”, and I responded to this in [REP7-234]. With decarbonisation, we are concerned about what can genuinely be achieved in practice, and essentially that means with the numbers adding up correctly. Decarbonisation proposals, CEMPs, “very powerful carbon reduction tools”, and marketing material, and the like which attempt to give cover for the massive remaining carbon emissions associated with the scheme, especially when it is not clearly evidenced that they will deliver what is claimed for them, do fall into the category of “greenwashing”.
- 75 The applicant must really explain what is going on with their claims about hydrogen, and critically how these actually relate and align with the CEMP and the EIA assessment based upon it. The onus is on the applicant to do this. I raised the issue of hydrogen in my WR [REP1-323] onwards, and I am not aware that the applicant has made any response. It is then extremely confusing for all parties to then read claims about hydrogen being made in the press which appear, as above, not to clearly align with the CEMP.

6 TYNDALL CENTRE BUDGETS

- 76 The applicant has recently contextualised the carbon emissions from another scheme (M3 Junction 9 Improvement) against the science-based carbon budgets from the Tyndall Centre.
- 77 I suggest to the ExA that it would be useful for the applicant to contextualise the carbon emissions for the LTC scheme within the science-based carbon budgets from the Tyndall Centre, and respectfully invite the ExA to request the applicant to do so.
- 78 I explained that the Tyndall budgets are derived by a stepwise downscaling from a scientifically established global carbon budget at [REP7-234]/8.5.

7 APPENDIX A: Press Release: 29th November 2023

From: [REDACTED]@nationalhighways.co.uk>

Sent: Wednesday, November 29, 2023 9:46 AM

To:

Subject: Four firms shortlisted for groundbreaking Lower Thames Crossing hydrogen bid



News release
nationalhighways.co.uk

Shortlisted for groundbreaking
Lower Thames Crossing hydrogen bid

- Four firms shortlisted to provide largest ever volume of hydrogen to UK transport sector
- Lower Thames Crossing to be first major UK infrastructure project to use hydrogen to power heavy c
- The infrastructure and skills developed by the project will speed up the use of hydrogen in the constr hydrogen economy in Thames Estuary

National Highways has today (29 November 2023) unveiled the four businesses that have been shortlisted to provide 100,000 kilograms of hydrogen for use on the proposed Lower Thames Crossing project, the largest volume ever bought in the UK transport sector.

The shortlisted firms are:

- Air Products PLC
- BOC Limited
- BP Oil UK Limited
- INOVYN Europe Limited

Having passed the first stage of the procurement process, the firms will move into a Competitive Dialogue with National Highways. This approach allows for direct discussion between each bidder and National Highways, and is designed to find the best solutions. The contract award is expected in summer 2024.

The contract is for the supply, storage and distribution of over 6 million kilograms of hydrogen, which will be used to power construction machinery that will be used to build the new crossing.

Diesel accounts for around a third of the projects carbon footprint, and using hydrogen will allow the scheme to replace around 20 million litres of diesel on its worksites. Electric plant and battery powered machinery will also be used for static or slow-moving machinery. Other renewable fuel sources and biofuels may also be used.

Kat Ferguson, Procurement Director, Lower Thames Crossing said:

“The proposed Lower Thames Crossing is designed to be the greenest road ever built in the UK. We’ve put carbon reduction at the heart of our procurement process, and have ambitious plans to use hydrogen to target one of the biggest sources of embedded carbon in the construction industry - diesel. We’ve shortlisted four firms who want to help us meet our carbon reduction targets by replacing around 20 million litres of diesel with hydrogen, and I look forward to moving into the next stage of the procurement process with them.”

As part of National Highways’ commitment to net zero maintenance and construction emissions by 2040, the Lower Thames Crossing has been designated a pathfinder project to explore carbon neutral construction during its main work phase between 2026 and 2030. The scheme seeks to remove an estimated total of 66 million litres of diesel from its worksites – and using new, cleaner fuel like hydrogen is one of the ways that will contribute to making this possible.

The purchase of such a large volume of hydrogen to use on the Lower Thames Crossing will speed up the construction industry’s move away from diesel power by showing other infrastructure projects what is possible, and by giving some of the UK’s biggest construction firms the confidence to invest in the next generation of machinery and skills that will then become the new standard practice on projects.

The ambitious plan will also kick-start the highly anticipated development of a hydrogen ecosystem in the Thames Estuary. According to the government-backed Thames Estuary Growth Board, this has the potential to create 9,000 new highly skilled jobs and a £3.8 billion boost to the economy.

The Lower Thames Crossing is a proposed new road and tunnel across the river Thames east of London. The detailed examination of the Lower Thames Crossing by the Government’s independent planning experts, the Planning Inspectorate, is currently underway. Once the plans are approved, construction is currently expected to start in 2026.

To find out more about the work on the Lower Thames Crossing, visit the webpage: [Lower Thames Crossing - National Highways](#)

Ends

NOTES TO EDITORS

1. National Highways is the wholly government-owned company responsible for modernising, maintaining and operating England's motorways and major A roads.

View our press releases online at <https://nationalhighways.co.uk/press/>

2. The Lower Thames Crossing is a proposed new road and tunnel across the river Thames east of London and will increase road capacity on the Dartford Crossing – one of the UK's most strategically important, but also most congested roads – around 13 million vehicles off it each year. It would almost double road capacity over the Thames east of London.

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