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Examination Principle Issues	**Climate Change**

DEADLINE D2 SUBMISSION

I am a scientist with a background in computer modelling of complex phenomena, including climate change. Between 1995 and 2006, I ran the high-performance computer service at the University of East Anglia. I also have 17 years' experience working on planning and climate change issues as a councillor both on Norwich City Council and on Norfolk County Council, and as an environmental consultant. My current work at CEPP is to promote the necessary rapid response to the Climate Emergency in mainstream institutions, such as local authorities, planning inquiries and government, through the lenses of science, policy, and litigation. (Further resume in Appendix H).

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.

SUMMARY

The key issue of this Written Representation ("WR") is how the significance of the climate change impacts of carbon emissions associated with the scheme are assessed. This is also the question with respect to greenhouse gases ("GHGs") which the Secretary of State (SoS) must grapple with and reach a reasoned conclusion, and that the Examination recommendations from the ExA must deal with.

By background, the UK has now a legal and policy framework on Climate Change which might be labelled as the "net zero" world. This "net zero" world contains several legal requirements, for example: the Net Zero target 2050, the Sixth Carbon Budget, the 2030 68% reduction target, the 2035 78% reduction target; and policy to deliver these legal requirements, for example, the Net Zero Strategy. None of these existed before 2019, and some of them are very recent, for example the Sixth Carbon budget and the Net Zero Strategy.

This requires a new approach to assessing significance, and this recognised by the Government in reviewing the NPSNN which was published in 2014 under a completely different UK climate change regime.

With the emergence of the new UK legal and policy frameworks on climate change, new industry guidance has emerged too, such as the publication by IEMA of a best practice guidance of EIA assessment of GHGs from infrastructure projects. It provides recommendations that naturally, given the very different prevailing climate change regime, extend beyond the traditional NPSNN based evaluation of significance with further contextualisation for GHG significance assessment. Application of this guidance for contextualisation literally provides "add-on" value to GHG assessment and the ES because the resulting significance assessment is considerably more trustworthy and accurate. This is explained at Section 2 of the WR.

Section 3 goes into the detail of the implications of there being no cumulative assessment of carbon emissions in the ES, and also provides further analysis of the causality of the issue (for example, how the baselines and scenarios in the traffic model are configured to exclude cumulative assessment). It also responds to incorrect arguments that the Applicant has made elsewhere about cumulative assessment and provides an update on my legal cases on (the lack of) cumulative assessment of carbon on other DCO schemes to which the Applicant is an Interested Party. Just for clarity, I once again state that categorically in this summary that there is no assessment of the climate change impact of cumulative carbon emissions in the ES.

Section 4 return to the assessment of significance using the IEMA guidance and shows that IEMA guidance has not been followed by the Applicant despite it being quoted and referenced. This section also covers the so-called TDP[1] Sensitivity test, and notes that as the implementation of the TDP is not secured, the TDP sensitivity test provides no evidence to support the conclusion that the emissions from the scheme are "not significant".

[1] Transport Decarbonisation Plan

There are a number of problems which result from this. First is that the ES is unlawful as there is no cumulative assessment of carbon emissions. Should this issue not be addressed by the Applicant, then the Examining Authority is respectfully requested to consider whether it is of the view that it is necessary for the ES to contain the necessary further information. The Examining Authority is requested to give consideration to Reg 20 (1) of the 2017 Regulations which provides the Examining authority with the option to 'suspend consideration of the application' if it is necessary for the ES to contain further information.

Second, the ES is effectively missing the data that IEMA contextualisations provide in determining both the IEMA significance criteria and the NPSNN 5.18 test in the "net zero" world of climate legislation and policy.

I should make it clear that IEMA contextualisation is not an "optional extra". The point I am making is that the IEMA contextualisation is a necessary part of assessment, in the "net zero" legal and policy world, **to actually reach the correct conclusion.** Without it, the incorrect conclusions may be reached, as I submit the Applicant has in their ES. This is because relevant and vital data is being missed. In thew approach of the Applicant, the assessor (or competent expert) goes into the assessment process (including NPSNN 5.18) with their eyes 95% closed; by employing IEMA assessment as an additional tool the assessor goes in with their eyed wide open.

The Examining Authority is also respectfully requested to consider if the ES should be updated with IEMA contextualisations, so that a **trustworthy** significance assessment can be attained.

I conclude that the scheme is **not** "not significant" and fails the NPSNN 5.18 test on the basis of the scale of the climate change impacts from its carbon emissions. The scheme should therefore be recommended for refusal.

Contents

1 INTRODUCTION

1.1 Deadline 2 (D2)

1 This is my Written Representation submission for Deadline D2. I previously submitted a Relevant Representation which is reproduced in clear format at Appendix G.

1.2 Definitions and Abbreviations

DMRB	Design Manual for Roads and Bridges
DM	"Do Minimum" traffic modelling scenario
DS	"Do Something" traffic modelling scenario
EIA	Environmental Impact Assessment
EFT	Emissions Factor Toolkit
GHGs	Greenhouse Gas Emissions
ER	Environmental Report
ES	Environmental Statement
TAG	Transport analysis guidance

2 For scientific clarity and precision, I use the following additional definitions:

- **Absolute emissions** – *carbon emissions which are expressed in terms of **an absolute quantity** of emissions. The value of the absolute emissions, as released into the atmosphere, quantifies the real measure of the impact of greenhouse gases on the environmental factor (or receptor) of the global climate.*

- **Differential emissions** – *carbon emissions, with an associated value which has been **derived by differentiation of absolute emissions**. The differentiation is usually performed by the difference between two traffic scenarios, one with a transport intervention and one without.*

2 APPROACHES TO SIGNIFICANCE ASSESSMENT OF GHGS

3 The key issue of this WR is how the significance of the climate change impacts of carbon emissions associated with the scheme may be optimally assessed to produce a robust and trustworthy significance assessment. This is necessary for the Secretary of State to be able to make a lawful decision under the Planning Act 2008 and other relevant legislation.

4 Evaluating significance of GHGs can be understood at an overarching level as "*is the Scheme consistent with the legal framework of the Climate Change Act 2008, the Net Zero target 2050, the Sixth Carbon Budget, the 2030 68% reduction targets, the 2035 78% reduction target, and the policy framework of the Net Zero Strategy to deliver them?*"

5 And what level of adversity (eg "Minor Adverse" etc) is attached to the climate impacts of the scheme when that question has been answered.

6 These are the questions which the Secretary of State (SoS) must grapple with and reach a reasoned conclusion, and that the Examination recommendations from the ExA must deal with.

7 This vital question of how to evaluate significance has been phrased in a number of ways at the next level, for example:

> "*Does the scheme do enough to align with and contribute to the relevant transition scenario, keeping the UK on track towards net zero by 2050 with at least a 78% reduction by 2035 and thereby potentially avoiding significant adverse effects"*

and

> *"Is the increase in carbon emissions resulting from the proposed scheme so significant that it would have a material impact on the ability of Government to meet its carbon reduction targets*

The first is from the IEMA Guidance (the significance criteria for "Minor Adverse") and the second from the NPSNN (the "NPSNN 5.18 test").

8 It can be seen that both evaluations have a common objective, that the scheme must align with, or not have a material impact so significant on, meeting national Climate Change targets. However, the approach to demonstrating how, and whether, national Climate Change targets will be met differs between IEMA and the NPSNN. The difference in approach can largely be attributed to the different publication dates of the guidance: NPSNN, 2014 and IEMA guidance, version 2, 2022.

9 NPSNN 5.17 says "*However, for road projects applicants should provide evidence of the carbon impact of the project and an assessment against the Government's carbon budgets.*" ("the NPSNN 5.17 comparison"). This simplistic comparison, and any assessment based on

it, has to be understood in the context that it was written before the Net Zero target 2050, under a different regime of legislated carbon budgets (the 2nd and 3rd budgets) with an 80% carbon reduction target for 2050. The completely different legislative and policy framework for climate change in 2014 is one reason why the government recognised that the NPSNN needed to be reviewed, as is now currently on-going.

10 The IMEA guidance version 2 has been published in the "net zero" world, which now is the legal and policy framework. It identifies a (third) key principle in its introduction to "Significance" (IEMA, v2, Chapter 6):

> *"GHG emissions have a combined environmental effect that is approaching a scientifically defined environmental limit [footnote 31]; as such any GHG emissions or reductions from a project might be considered to be significant [footnote 32]"*
>
> Where footnote 31 is *"There is a global GHG emission budget that defines a level of dangerous climate change, and any GHG emission that contributes to exceedance of that budget or threatens efforts to stay within it can be considered as significant."*
>
> And footnote 32 is *"The third principle is related to the IPCC carbon budget definition. The IPCC's Sixth Assessment Report (WG1: The Physical Science Basis, Table SPM.2) indicates that the remaining global carbon budget from 2020 that provides a two-thirds likelihood of not exceeding 1.5°C heating is 400 GtCO2; for an 87% likelihood it is 300 GtCO2."*

As well as being in the "net zero" world, the IEMA guidance clearly identifies its scientific sources (the latest IPCC report), and as we will see IEMA advocate science-based carbon budgets (see section 6.2 of this WR) and makes clear that all emissions all emissions contribute to climate change[2].

11 In the perspective of the "net zero" world, IEMA accepts the comparison against national budgets as a starting place for assessing significance. However, it strongly recommends that that such a national comparison is then in addition contextualised with comparisons with local, regional and sectorial carbon budgets and targets.

12 The applicant has, as far as significance assessment, only performed the MPSNN 5/17 comparison, and has decided (despite claiming otherwise, see next sub-section) not to follow IEMA, and therefore, not to do local regional and sectorial contextualisation. It is an error for the Applicant to develop its ES as if the two approaches are options, and that one may be selected over the other, as it has done by solely using the NPSNN 5.17 comparison method for significance.

[2] IEMA Guidance, version 2, Box 3

13 With the emergence of the new UK legal and policy frameworks on climate change, and the publication by IEMA of a best practice guidance reflecting them, the reality is that by using the IEMA approach, in addition to an assessment that *starts* with a NPSNN 5.17 comparison, results in a significance assessment which is considerably more **trustworthy and accurate**.

14 When IEMA contextualisation is used with the NPSNN national comparison, the resulting assessment provides a much more accurate evaluation of the risk of delivery of the legal and policy framework. By this, I mean, that an evaluation of the common objective, that the scheme must align with, or not have a material impact so significant on meeting national Climate Change targets, is the ultimate goal for both IEMA and NPSNN.

15 However, using IEMA contextualisation provides a much greater evidence-base on which to make the significance assessment at NPSNN 5.18.

16 The ES, as submitted, is simply missing vital data. The data in question can include key aspects of more recent policy since the NPSNN was published, for example, the Net Zero Strategy projections of carbon reductions, and the Tyndall Centre science-based carbon budgets which align to the science-based budgets required to deliver the Paris Agreement (as explained in Appendix B).

17 By doggedly continuing to follow what is widely accepted as outdated guidance in the NPSNN, even as it is being reviewed by the Government, the Applicant is not just avoiding new methods, but they are excluding a significant evidence base related to more recent legislation and policy which is critical and essential to perform the NPSNN 5.18 test correctly.

18 Therefore the NPSNN 5.18 test performed by the Applicant without any IEMA contextualisation may produce a misleading and incorrect result (assessment). It therefore can arrive at an incorrect significance assessment in relation to the new policy and legislation. Beyond being technically wrong, it is legally in error, as by deliberately omitting new evidence bases, such as the Net Zero Strategy trajectories which are part of the legally required plan to deliver the Climate Change Act, it cannot be said to rationally assess the latest legal and policy framework.

19 It is only by also carrying out IEMA contextualisation(s), as a complementary evaluation(s), that the technically correct, and lawful, significance assessment can be reached.

3 NO CUMULATIVE CARBON ASSESSMNET

3.1 Reviewing the carbon emissions assessment done

20 Table 15.23 provides estimates for the "net change in GHG emissions" for construction and operation emissions against the carbon budget periods. In effect the data provided against the carbon budgets is Do Something – Do Minimum, or DS- DM, estimates of the GHG emissions.

21 As the only difference between the DS and DM scenarios is the Scheme itself, the estimated figure for the emissions from the scheme for each carbon budget used for assessment (in Table 15.23) is Scheme-only, or 'solus', and not cumulative. Assessment of the significance of the scheme was then made by comparing this difference figure to each national carbon budget (i.e. a Scheme-only assessment was made).

22 I describe the difference between the "DM" and "DS" scenarios as "Scheme-only" estimates, and I submit that no cumulative assessment has been made.

23 This comparison of the 'difference' DS-DM estimates against national carbon budgets cannot, in itself, discharge the requirement of the EIA 2017 Regulations for an assessment of the cumulative impacts of the scheme.

3.2 There is no cumulative impacts assessment of the carbon emissions from the scheme

24 It is a statutory requirement that the ES assess the cumulative effects of the scheme with other developments: paragraphs 5 of Schedule 4 to the EIA Regulations 2017, relevantly, requires the ES to include:

> *"A description of the likely significant effects of the development on the environment resulting from, inter alia:*
> …
> *(e) the cumulation of effects with other existing and/or approved projects, …;"*

More detail of the legal framework for Environmental Impact Assessment, and the 2017 regulations, is given at Appendix A.

25 The problem with the ES is that by including "*existing and/or approved projects*" in the DM scenario (and then presuming that it is the traffic model baseline), it inaccurately treats all of the committed local land based and road developments in the study area, other than the Scheme, as though they give rise to *existing* emissions and not *additional emissions* alongside the Scheme. This means that the Applicant has not actually conducted any assessment of the significance of the cumulative carbon emissions from the Scheme with other existing and/or proposed developments. The Applicant has only conducted an assessment of the impact of the Scheme in isolation, against a baseline that assumes that the other existing and/or proposed developments in the area already exist.

26 The Applicant attempts to address this issue at the "Potential cumulative effects" section starting at 15.11.14. I have no dispute with the description of the traffic model at section 15.11.14. However, the second sentence of section 15.11.15 is wrong. All the other developments are not expressed by the DS-DM calculation (or by comparing 'without scheme scenario' and the 'with scheme scenario'), as the carbon emissions associated with other developments are included within both the DS and DM scenarios, and is subtracted out. The cumulative effects of the other developments is therefore masked out in the assessment against carbon budgets which is based upon the DS-DM value only.

27 The emissions from these local land-based and road developments are treated as if they are existing emissions (when in fact the developments haven't yet been built) because, as shown above, the DM scenario is (incorrectly) treated as the baseline for the carbon emissions assessment.

28 This then infects the assessment as ES section 15.11.8, and the evaluation of significance as "not significant". As above, the ES considers only the figure for the difference between the two scenarios (i.e. "Scheme only" figures). It sets these out as percentages of the various 5-year national carbon budgets. It, therefore, looks at the Scheme's impact on climate change in isolation and not cumulatively with any other existing or proposed developments. In particular, it does not assess (such as against the carbon budgets) the cumulative impact of the Scheme with any other projects, in this case the local land based and road developments, or make any judgement about what projects should be considered cumulatively with this one. This makes it impossible to assess lawfully whether the scheme's emissions cumulated with other projects' emissions would materially impact the ability to meet the Government's carbon reduction targets.

29 My position is simply that it is a legal requirement in assessing the significance of the scheme to include the cumulative impact of the Scheme with existing and/or approved projects and that the Applicant has, instead, considered only the impact of the Scheme in isolation in Table 15.23 (the **only** assessment ever made in the ES).

30 To summarise:

- CATEGORICALLY, there is no assessment of the impact of cumulative carbon emissions in the ES. Categorically, no such cumulative assessment has been attempted. Importantly, it is not that a cumulative assessment of carbon emissions has been attempted, and I disagree with the way it has been done. It is that a cumulative assessment of carbon emissions has not been done at all in the ES and the Application.

  The traffic and emissions from the local land based and road developments are added into the traffic model DS scenario, and then subtracted out when the DS is compared to the DM scenario in Table 15.23.

- The omission is unlawful with respect to the EIA Regulations 2017 ("the 2017 Regulations"). Until this omission is corrected, the ES remains unlawful. By failing to conduct the cumulative assessment, the ES is defective because it fails to meet the requirements in paragraphs 5 of Schedule 4 to the EIA Regulations 2017 read with Schedule 4, para. 5(f) and reg.5(2).

31 However, the lack of any cumulative assessment is just the first of the problems which make the ES fundamentally unsuited to assessing the material impacts of the scheme on the ability to meet the Government's carbon reduction targets. The second problem is the lack of any contextualisation of the assessment made with local, regional and sectorial budgets as discussed in the next main section.

3.3 Update on R(Boswell) v Sec of State for Transport CO/2837/2022, CO/3506/2022 & CO/4162/2022

32 These are three claims before the High Court in which there is a ground (Ground 1 in each case) which relates to the issue of cumulative carbon assessment, as discussed above.

33 On 14 December 2022, the Honourable Mr Justice Holgate granted permission to apply for judicial review for Ground 1 in each of CO/2837/2022, CO/3506/2022 & CO/4162/2022.

4 ASSESSMENT OF SIGNIFICANCE

4.1 The applicant misinterprets the IEMA guidance

34 The Applicant refers to the IEMA v2 guidance: for example at 15.5.15. However, the applicant ignores IEMA's guidance both for contextualising the assessment of carbon emissions, and for the assessment of significance. First, I explain the IEMA guidance in more detail.

4.2 Latest IEMA Guidance

35 In February 2022[3], the Institute of Environmental Management & Assessment (IEMA) released version 2 of its "Assessing greenhouse gas emissions and evaluating their significance" guidance. Although the IEMA Guidance is not on a statutory footing, it is the primary guidance on assessing the significance of greenhouse gas emissions within the UK. Worldwide, IEMA is the professional home of over 18,000 environment and sustainability professionals from around the globe.

4.3 Contextualisation of GHG assessment

36 The IEMA guidance sets out that "the crux" of significance of GHG emissions is whether the project under consideration "*contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050*". Importantly, it goes on to state that the "*context of a project's carbon footprint determines whether it supports or undermines a trajectory towards net zero".*

37 Whether a project supports or undermines a trajectory towards net zero is a key condition in also determining the NPSNN 5.18 carbon test of whether "*the increase in carbon emissions resulting from the proposed scheme are so significant that it would have a material impact on the ability of Government to meet its carbon reduction targets*". If a project does not support a trajectory towards net zero, then it has a material impact on the ability of Government to meet its carbon reduction targets, and it fails the NPSNN 5.18 test.

[3] This appears to be the same guidance as referenced by the Applicant at footnote 28 of Chapter 7 as "2021" – this is believed to be an error in the ES.

38 The IEMA guidance continues:

> "*The starting point for context is therefore the percentage contribution to the national or devolved administration carbon budget as advised by the CCC. However, the contribution of most individual projects to national-level budgets will be small and so this context will have* ***limited value****."*

39 The IEMA Guidance, therefore, goes on to set out that it is good practice to use sectoral, regional and local carbon budgets to contextualise the project's GHG emissions. Local authority scale budgets are recommended including those from local authorities to the science-based local authority scale carbon budgets compiled by researchers at the Tyndall Centre at the University of Manchester.

40 The guidance also states that "***It is good practice to draw on multiple sources of evidence*** *when evaluating the context of GHG emissions associated with a project*"

41 Guidance issued by the European Commission for the EIA Directive, from which the EIA regulation is transposed to the UK statute, also states[4] that the assessment of GHG emissions "*should take relevant greenhouse gas reduction targets at national, regional and local levels into account, where available*", see Appendix F.

42 Further under "General principles of assessment", the NPSNN at 4.4 states:

> *"In this context, environmental, safety, social and economic benefits and adverse impacts, should be considered at national, regional and local levels. These may be identified in this NPS, or elsewhere."*

43 Both the NPSNN and the EIA Guidance support the recommendations of IEMA that contextualisation of carbon emission assessment should be carried out by reference to local, regional and sectorial budgets and targets.

4.4 IEMA Significance assessment

44 The IEMA Guidance addresses significance at Chapter 6. It acknowledges the objective of the Paris Agreement and the UK's net zero 2050 target together with 5 yearly carbon budgets defining a trajectory towards net zero. It then states:

> *"To meet the 2050 target and interim budgets, action is required to reduce GHG emissions from all sectors, including projects in the built and natural environment. EIA for any proposed project must therefore give proportionate consideration to whether and how that project will contribute to or jeopardise the achievement of these targets.*

[4] "Environmental Impact Assessment of Projects", Guidance on the preparation of the Environmental Impact Assessment Report, European Commission, page 39

…
The crux of significance therefore is not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050.

Often a project will cause a change in GHG emissions compared to the baseline which should be assessed, as discussed in Sections 5.3. When setting this impact into context to determine significance, it is important to consider the net zero trajectory in line with the Paris Agreement's 1.5°C pathway.

The timing of reductions is critical due to the cumulative effect of GHG emissions in the atmosphere. Achieving net zero or very low emissions by 2025 instead of 2040 would avoid 15 years of cumulative heating.

The specific context for an individual project and the contribution it makes must be established through the professional judgement of an appropriately qualified practitioner, drawing on the available guidance, policy and scientific evidence."

45 The IEMA Guidance then seeks to categorise significance by reference to the UK's net-zero compatible trajectory and provides the chart below together with the following categories:

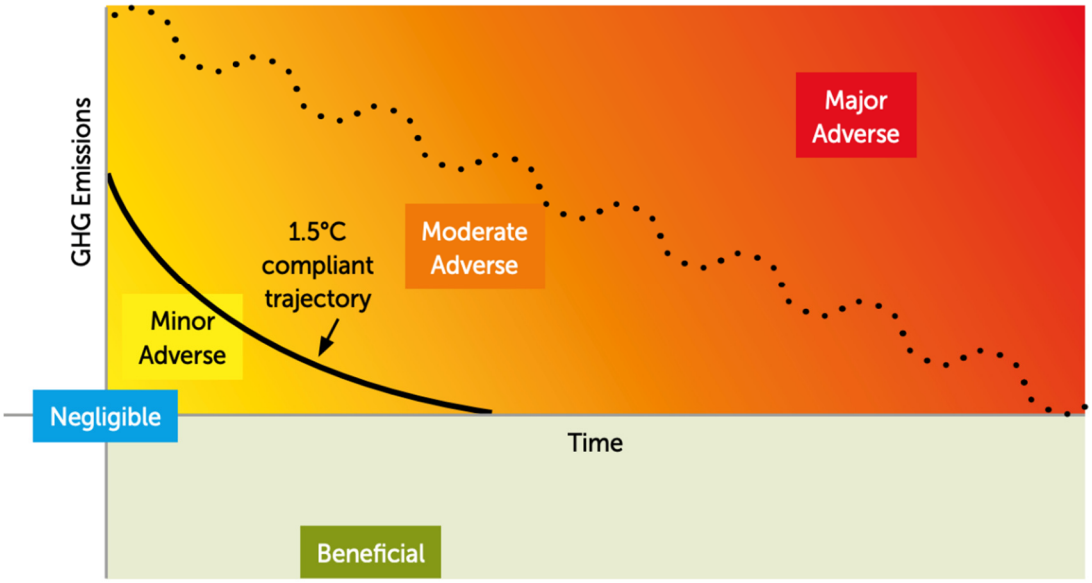

Figure A120.CEPP.WR.Fig-1: IEMA Significance diagram (reproduced)

46 Any project assessed more than "Minor Adverse" (ie 'Moderate' or 'Major' Adverse) has a significant adverse effect.

47 IEMA explain that a "Minor Adverse" (and not significant) project is one:

> *"that is compatible with the budgeted, science-based 1.5°C trajectory (in terms of rate of emissions reduction) and which complies with up-to-date policy and 'good practice' reduction measures to achieve that has a minor adverse effect that is not significant. It may have residual emissions but is doing enough to align with and contribute to the relevant transition scenario, keeping the UK on track towards net zero by 2050 with at least a 78% reduction by 2035 and thereby potentially avoiding significant adverse effects."*

48 Box 3 of the IEMA guidance provides a table on significance criteria, and for "Minor Adverse" states:

> *"the project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero".*

Note that it is the project itself that must be fully in line with measures necessary to achieve the UK's trajectory towards net zero. "Minor Adverse" significance cannot be achieved by relying upon the national policy setting to meet the UK climate targets by actions elsewhere. I discuss the national policy compliance setting which prevails in the next section.

49 The IEMA guidance significance criteria for "Moderate Adverse" is:

> *"the project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to the UK's trajectory towards net zero."*

50 The IEMA guidance significance criteria for "Major Adverse" is:

> *"the project's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero."*

4.5 The national policy compliance setting and significance assessment (including IEMA) of the scheme

51 The Examining Authority is required to make a recommendation to the Secretary of State, and that must include either agreeing with the Applicant's assessment, disagreeing with the Applicant's assessment and/or recommending to the SoS that s/he consider particular unresolved (by the examination) issues in the assessment in making his/her decision. The following is intended to provide vital context for that recommendation process.

52 The Climate Change Committee's ("**CCC's**") June 2022 Progress Report[5] identified significant delivery risks or policy gaps for 38% of required emissions reductions to meet the Sixth Carbon Budget ie: around 61% of the required emissions reductions for the 6th carbon budget are not even secured "on paper" yet. In the surface transport sector about half of the required emissions reductions for the 6th carbon budget are not even **secured** "on paper" yet.

53 A key message in the report was that tangible progress on delivery is lagging the policy ambition. That is, policy alone will not deliver the deep and rapid emissions reductions needed to meet the Sixth Carbon Budget, and earlier targets like the Nationally Determined Contribution under the Paris Agreement to reduce emissions by 68% by 2030. Substantial, decisive and urgent action, and delivery is needed. More is provided on this CCC report in Appendix D.

54 The Secretary of State is required to reach a reasoned conclusion on the significant effects of the proposed development on the environment under Regulation 21 of the 2017 Regulations (the EIA Regulations). S/he must do so in full consideration of extent to which national policies on climate change, including those of his own department, have been secured or not. As above, he must take into account that the delivery of at least half the carbon emission reductions of his own policies under the TDP remain unsecured and in doubt.

4.6 The key criteria of significance assessment is how secure is the delivery of the Net Zero Strategy

55 The applicant National Highways has, on other recent schemes, attempted to rely upon an assumed inevitable success of the NZS (and TDP) policies to retrofit meeting the NPSNN 5.18 test. The logic goes that whatever the emissions from the scheme, and their trajectory, national policy will deliver UK climate budgets and targets because these budgets, targets, and policy documents purporting to deliver them, merely exist. On this (false) logic, a scheme can increase emissions, and even if the reported emission increases have never been demonstrated by the Applicant to be compatible with the relevant budgets and targets, the carbon emissions are considered to be compatible with those budgets and targets, because they will be "inevitably" delivered.

[5] Climate Change Committee, "2022 Progress Report to Parliament - The CCC's annual assessment of UK progress in reducing emissions",

56 However, the real question is the other way round.

That is, not how the mere existence of a national legal and policy framework on climate change assists the scheme in attaining some notional, but undemonstrated, compliance to it, but rather how the scheme itself assists the delivery of that national legal and policy framework.

I am reminded of John F. Kennedy's immortal words[6] "*Ask not what your country can do for you – ask what you can do for your country*".

What is of the most interest, then, is the question "to what extent does the project contribute, or undermine, securing the Net Zero Strategy and 6th carbon budget?", and how does this establish whether the NPSNN 5.18 test is met or not.

57 It is far too premature for weight to be given to any claims based on the notion that the NZS, or the TDP, will inevitably succeed in securing the Government's carbon emissions reduction targets – this applies both to Environmental Statements, and to DCO decisions. Such a proposition is clearly not true or evidenced.

58 Following the CCC Progress Report, the SoS cannot assume that this proposition holds with any credibility. The CCC Progress Report has indeed shown that the success of the NZS and the TDP are by no means secured, and that no weight can be given to the proposition that they are. In fact, the evidence from the CCC Progress Report is that much more progress is required in securing the NZS trajectories for both surface transport and other parts of the economy for the Sixth carbon budget and net-zero.

59 The same delivery risk or policy gap was highlighted by the High Court in R (Friends of the Earth) v Secretary of State for Business Energy and Industrial Strategy [2022] EWHC 1841 (Admin) ("the Net-Zero case")[7]. Holgate J. recorded the NZS's acknowledgement that the delivery pathways to achieve the 6th Carbon Budget are "highly ambitious" and face considerable "delivery challenges" and recorded that achievement was subject to "a wide uncertainty range". The judge noted at [204] and [211] that in approving the Net Zero Strategy, "*one obviously material consideration which the Secretary of State must take into account is risk to the delivery of individual proposals and policies and to the achievement of the carbon budgets and the 2050 net zero target.*" In finding the NZS unlawful, the judge described this as "the critical issue" when concluding that the information provided to the Minister when reporting on the NZS was insufficient to enable him to discharge his reporting obligations under section 14 of the Climate Change Act 2008.

[6] John F Kennedy, inaugural address, January 20, 1961

[7] R (Friends of the Earth) v Secretary of State for Business Energy and Industrial Strategy [2022] EWHC 1841 (Admin)

60 Likewise, this delivery risk or policy gap should be at the front of the Secretary of State's mind in considering the A120 scheme, and the assessment of significance, and, with respect, the ExA's recommendations must facilitate proper consideration of the issue. And the key question is "*does the project increases the delivery risk (to the Net Zero Strategy and 6th carbon budget), or does it reduces it?*"

4.7 TDP Sensitivity Test

61 In Table 15.24, the Applicant present what it calls a "TDP sensitivity test".

62 I have already shown above that the CCC Progress Report has shown that the success of the NZS and the TDP are by no means secured, and that no weight can be given to the proposition that they are.

63 Further, very recently, a Freedom of Information release was made by the Department for Transport with details of the calculations underpinning the Government's transport decarbonisation plan to Professor Greg Marsden. Initial analysis by Professor Marsden shows that the FoI release provides further evidence that the TDP is not secured in any meaningful sense. Further evidence will be provided at later deadlines in relation to this.

64 As the so called TDP Sensitivity test purports to apply the "implementation of the TDP" (section 15.11.11), and that implementation is not secured, the TDP sensitivity test provides no evidence to support the conclusion that the emissions from the scheme are "not significant".

4.8 ExA's questions

65 I note the ExA's question 4.01 and 4.03 relating to the impact of carbon emissions from the scheme. I await the response by the Applicant before commenting further.

5 BCR CALCULATIONS

66 I note the ExA's question 4.02 and await the response by the Applicant before commenting.

6 INFORMATION REQUESTED

67 I request that the Applicant discloses the following information:

1 The full 60-year carbon appraisal for operational emissions, including the DS and DM trajectories, and the full TAG 60-year Greenhouse Gases workbook

2 The economic and carbon outputs from TUBA

7 CONCLUSIONS

68 The ES is unlawful as there is no cumulative assessment of carbon emissions. Should this issue not be addressed by the Applicant, then the Examining Authority is respectfully requested to consider whether it is of the view that it is necessary for the ES to contain the necessary further information. The Examining Authority is requested to give consideration to Reg 20 (1) of the 2017 Regulations which provides the Examining authority with the option to 'suspend consideration of the application' if it is necessary for the ES to contain further information.

69 The ES is effectively missing the data that IEMA contextualisations provide to determine both the IEMA significance criteria and the NPSNN 5.18 test in the "net zero" world of climate legislation and policy.

70 The NPSNN 5.18 test performed by the Applicant without any IEMA contextualisation produces a misleading and incorrect result (assessment): it arrives at the incorrect significance assessment (of "not significant") in relation to the new policy and legislation. Beyond being technically wrong, it is legally in error as, by deliberately omitting new evidence bases, such as the Net Zero Strategy trajectories which are part of the legally required plan to deliver the Climate Change Act, it cannot be said to rationally assess the latest legal and policy framework.

71 The Examining Authority is also respectfully requested to consider if the ES should be updated with this information, so that a trustworthy and correct significance assessment can be made.

72 **The scheme should therefore be recommended for refusal.**

Dr Andrew Boswell,
Climate Emergency Policy and Planning, February 13th, 2023

8 APPENDIX A: LEGAL FRAMEWORK: ENVIRONMENTAL IMPACT ASSESSMENT

73 The Scheme is a Nationally Significant Infrastructure Project ("NSIP") within the meaning of s.14 and s.22 Planning Act 2008 ("PA 2008") and is EIA development. EIA of NSIPs is governed by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ("the 2017 Regulations").

74 The EIA process, including the preparation of an ES, must identify, describe and assess (those being separate statutory steps) in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on various prescribed factors, including climate (for example the nature and magnitude of greenhouse gas emissions): see reg. 5(1), 5(2)(c) and Schedule 4, para. 5(f) of the 2017 Regulations.

75 By reg. 14(2) [CB/344-45], the ES must include, at least, the information set out in reg. 14(2)(a) to (f). This includes:

> *"(b) a description of the likely significant effects of the proposed development on the environment [… and]*
>
> *(f) any additional information specified in Schedule 4 relevant to the specific characteristics of the particular development or type of development and to the environmental features likely to be significantly affected."*

76 By reg. 14(3)(b). an ES must:

> *"include the information reasonably required for reaching a reasoned conclusion on the significant effects of the development on the environment, taking into account current knowledge and methods of assessment;"*

77 In turn, paragraph 5 of Schedule 4 to the 2017 Regulations requires the environmental statement to include:

> *"A description of the likely significant effects of the development on the environment resulting from, inter alia:*
>
> *[…]*
>
> *(e) the cumulation of effects with other existing and/or approved projects […]*
>
> *(f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change.*
>
> *[…]*

The description of the likely significant effects on the factors specified in regulation 5(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development …".

78 When deciding whether to make an order granting development consent for relevant development the Secretary of State must, by reg. 21(1) [CB/346]:

"(a) examine the environmental information;

(b) reach a reasoned conclusion on the significant effects of the proposed development on the environment, taking into account the examination referred to in sub-paragraph (a) and, where appropriate, any supplementary examination considered necessary;

(c) integrate that conclusion into the decision as to whether an order is to be granted […]"

79 'Environmental information' is defined by reg.3(1) as:

"the environmental statement […], including any further information and any other information, any representations made by any body required by these Regulations to be invited to make representations and any representations duly made by any other person about the environmental effects of the development and of any associated development…"

80 It follows that the conclusion on whether development consent is granted must be based on an assessment of the significant effects of the proposed development on the environment which must in turn take into account (among other things) *a description of the likely significant effects of the development on the environment resulting from the cumulation of effects with other existing and/or approved projects*. That involves three distinct stages: (1) identification and description of those cumulative effects, (2) assessment of their significance, and (3) integration of that into the decision on whether development consent should be granted.

8.1 Accepted application—effect of environmental statement being inadequate

81 Reg 20 (1) provides the Examining authority with the option to 'suspend consideration of the application' if it is necessary for the ES to contain further information. This situation would arise if the ES was found to be inadequate because it failed to make an adequate assessment of the significant effects of the proposed development on the environment, for example, because the ES did not include *a description of the likely significant effects of the development on the environment resulting from the cumulation of effects with other existing and/or approved projects*.

82 The necessary steps are provided at Reg 20 as follows:

"(1) Where an Examining authority is examining an application for an order granting development consent and paragraph (2) applies, the Examining authority must—

(a)issue a written statement giving clearly and precisely the reasons for its conclusion;

(b)send a copy of that written statement to the applicant; and

(c)suspend consideration of the application until the requirements of paragraph (3) and, where appropriate, paragraph (4) are satisfied.

(2) This paragraph applies if—

(a)the applicant has submitted a statement that the applicant refers to as an environmental statement; and

(b)the Examining authority is of the view that it is necessary for the statement to contain further information.

(3) The requirements mentioned in paragraph (1) are that the applicant must—

(a)provide the Examining authority with the further information;

[…]"

9 APPENDIX B: SCIENCE-BASED CARBON BUDGETS AND COMPLIANCE WITH THE PARIS AGREEMENT

83 This appendix is provided to give some overall context to carbon budgets, and the difference between policy-based carbon budgets, such as those in the UK carbon budgets, and science-based carbon budgets, such as the Tyndall Centre budgets.

9.1 What is a carbon budget and how is it produced?

84 A financial budget is defined as 'a plan to show how much money a person or organisation will earn and how much they will need or be able to spend'[8]. A carbon budget is similar, but instead of money, it sets out "the cumulative amount of carbon dioxide (CO2) emissions permitted over a period of time to keep within a certain temperature threshold[9]." **Unlike money, for carbon budgets, there are no overdraft facilities, nor national deficits, not quantitative easing mechanisms from central banks.** Once a CO2 budget is spent, it cannot be recovered, and the laws of physics determine the consequences for the planet and for humanity[10]. Carbon budgets are a tool to help reveal the truth of this situation.

85 The "laws of physics" can now provide increasingly accurate modelling of the global and local carbon budgets. In the last five years the reports of the Intergovernmental Panel on Climate Change (IPCC) have highlighted that our political institutions, businesses, and society have not started to respond to the climate emergency with the urgency required. Simply put humanity is living outside of our budget.

86 Collectively, we now know that this decade is the most crucial decade for reversing 200 years of carbon polluting activities, reversing the rash, profligate spending of our collective carbon budget, and building a new future based on a non-polluting global society. It is crucial that we address this emergency using every tool possible, and this includes carbon budgets and their capacity to point to where we are not doing enough, as captured by IEMA as "*doing enough to align with and contribute to the relevant transition scenario, keeping the UK on track towards net zero by 2050 with at least a 78% reduction by 2035 [footnote 37]and thereby potentially avoiding significant adverse effects."*

[8] [redacted]

[9] [redacted]

[10] Greenhouse gas removals (GGR) and negative emissions technologies may provide extremely costly, speculative, and unproven at scale methods which proxy for an "overdraft facility". Even if these work, they would be like paying back a loan at a huge interest rate. See, in core documents, Kevin Anderson , John F. Broderick & Isak Stoddard (2020): A factor of two: how the mitigation plans of 'climate progressive' nations fall far short of Paris-compliant pathways, Climate Policy, DOI: 10.1080/14693062.2020.1728209, Appendix A "*However, there is wide recognition that the efficacy and global rollout of such technologies are highly speculative, with a non-trivial risk of failing to deliver at, or even approaching, the scales typically assumed in the models. … Whilst the authors of this paper are supportive of funding further research, development and, potentially, deployment of NETs, the assumption that they will significantly extend the carbon budgets is a serious moral hazard (Anderson & Peters, 2016).*"

9.2 Relationship of a carbon budget and the 2015 Paris Agreement

87 The Paris Agreement 2015 is a legally binding international treaty on climate change. It was adopted by 196 Parties at COP 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016[11]. The UK is a signatory to the agreement. Its goal is to limit global heating to well below 2ºC degrees, preferably to 1.5 ºC, compared to pre-industrial levels.

88 Scientists have established models that calculate how much more carbon dioxide[12], at various statistical probabilities, may be emitted globally into the atmosphere before breaching various temperatures of global overheating – eg: how many billions of tonnes (or Gigatonnes, GtCO2) before breaching 1.5 degrees (at 66% chance), how many billions of tonnes before breaching 2.0 degrees etc (at 50% chance). These are referred to as carbon budgets, and I have previously explained them above as a bank account analogy but with no overdraft, deficit, or quantitative easing facilities available.

9.3 The difference between policy-based and science-based carbon budgets

89 It is important to understand the difference between science-based carbon budgets and political targets like the UK net-zero target. Net-zero by 2050 can be achieved by many different paths or trajectories of annual carbon emissions, and the carbon emitted is basically the area under the curve. Annual emissions cuts may be applied late (known as "backloaded") or early (known as "frontloaded") depending on policy decisions. Policy that delivers backloaded, or less steeply front-loaded, cuts will have a much greater quantum of carbon emissions emitted under the curve on the way to get to net-zero, and therefore also require larger carbon budgets (from the fixed global budget).

90 **Science-based carbon budgets by contrast** aim to define a curve or trajectory which meet the criterion of fitting within the global carbon budget. That is science-based carbon budgets follow the path necessary to meet a temperature target aligned to the Paris agreement.

91 The UK Committee on Climate Change publish paths and budgets, and Parliament has placed them in statute, but their ability to meet the criterion of the Paris temperature target has not been demonstrated scientifically – although CCC may genuinely endeavour to meet that criterion. In fact, the CCC budgets, and assumptions, and hence UK carbon budgets, are increasingly challenged by scientists, see below.

[11] [redacted]

[12] In fact, the models assess a variety of Greenhouse Gases, but for simplicity I restrict this document to CO2 (carbon dioxide) carbon budgets

92 It is further worth noting that a recent report[13] from Climate Crisis Advisory Group (CCAG) has recently said that there is no remaining carbon budget for the 1.5°C Paris temperature target and policy should be directed towards net-negative carbon emissions as soon as possible. The report says:

> *"**The CCAG is clear that the current shift in global emissions is not sufficient to avoid global disaster, and there is no 'remaining Carbon Budget'**. If proper account is taken of all greenhouse gases, and their CO2 equivalence, the 450ppm threshold has already passed, contradicting the widespread notion of a 'carbon budget' that could still be spent whilst remaining below 1.5°C temperature rise."*

The CCAG was founded, and is chaired, by the eminent scientist Professor Sir David King, Fellow the Royal Society (FRS), and former UK Government's Chief Scientific Advisor from 2000 to 2007. CCAG comprises prominent climate scientists. It was created in response to the Climate Emergency in 2021, as a new advisory group to help inform the public, governments and financial institutions providing them with the most comprehensive science, and more crucially, guiding them towards action for climate repair. CCAG's important scientific commentary on the climate crisis can be made by their small group on a faster cycle than the IPCC.

9.4 Science-based carbon budget assessment of compliance against UK obligations under the Paris agreement

93 To understand what emission reductions should be made in UK local authority areas to make a 'fair' contribution[14] towards the Paris Climate Change Agreement, scientists at Manchester Tyndall Centre have taken IPCC global carbon budgets and produced the so-called SCATTER budgets for UK local authorities. SCATTER stands for Setting City Area Targets and Trajectories for Emissions Reduction project and was funded by the Department for Business Energy and Industrial Strategy (BEIS). It developed a methodology for Local Authorities to set carbon emissions targets that are consistent with United Nations Paris Climate Agreement[15].

94 These science-based budgets translate the "well below 2°C and pursuing 1.5°C" global temperature target, and the equity principles enshrined in the United Nations Paris Agreement, to a national UK carbon budget which is then split between sub-national areas using different allocation regimes.

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[13] CCAG report, August 2021, "The final warning bell",

[14] 'fair' meaning equitable under the Paris Agreement equity principles between developing and developed nations, known as Common but Differentiated Responsibilities and Respective Capabilities (CBDR–RC)

[15]

95 The assumptions for this transformation from global to local budgets in given in two sources:

a) a 2020 Climate Policy paper[16], widely referred to as the "Factor of Two" paper

b) the "full" report from the Tyndall Carbon Budget Tool for UK Local Authorities, widely referred to SCATTER budgets

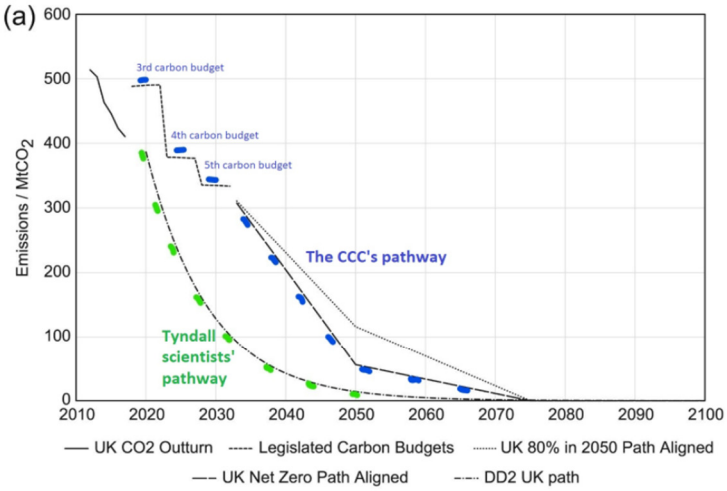
These two sources are authored by the same research group and are internally consistent. The "Factor of Two" paper is a landmark in 2020 in appraising national carbon budgets.

9.5 Comparison to carbon budgets/targets derivable from the Climate Change Committee

96 Following, the Climate Change Committee (CCC) sixth Carbon Budget (6CB) report, the UK has enshrined in law and policy its headline recommendation is for the UK to deliver a reduction in net annual emissions of 78%, against a 1990 baseline, by 2035. The previous UK ambition was targeting an 80% reduction against 1990 figures by 2050 under the original Climate Change Act, so this represents a halving of the time to get to around 80% emission cuts (against 1990 baseline) from 2020.

97 However, the CCC do not show anywhere how the 6th Carbon Budget (6CB) can be derived directly by a stepwise downscaling from a scientifically established global carbon budget (in contrast to the Manchester Tyndall research and references above which do demonstrate this). The derivation of the 6CB is focussed more on meeting the national, politically set, net zero-target of 2050 via an array of policy interventions rather than fitting to a specific carbon budget (relating to the back-loading and front-loading point above). The point here is that are many possible pathways to reach net-zero, and each will have different accumulated carbon emissions under the curve – so one can reach net-zero having added more or less emissions to the global atmosphere, some pathways may blow our carbon budgets. The science-based carbon budget approach is designed to specify a pathway which keeps within the carbon budgets.

[16] Kevin Anderson, John F. Broderick & Isak Stoddard (2020): A factor of two: how the mitigation plans of 'climate progressive' nations fall far short of Paris-compliant pathways, Climate Policy, DOI: 10.1080/14693062.2020.1728209



This graph is from the Factor of Two paper by climate scientists at the Tyndall centre. People & Nature added the highlights. The pathway for UK carbon emissions highlighted in green is one that, the scientists argue, is compatible with the Paris agreement. The pathway highlighted in blue is one they have plotted to reflect the CCC's emissions reductions proposals: it implies cutting emissions at about half the pace that the scientists' pathway implies

Figure A120.CEPP.WR.Fig-2: Comparison of science-based Tyndall Centre et and policy-based CCC carbon budgets, and Paris Agreement alignment (reproduced)

98 Generally, the difference between the Tyndall and CCC carbon budgets is that the Tyndall ones are 2 – 3 times smaller (and tighter). As shown above, the Tyndall budgets have rapid decarbonisation from 2020 in order to meet the overall budget (area under the curve). The Tyndall trajectory is derived from the IPCC budget for 1.7ºC[17], supporting the point from CCAG that there is no remaining budget for 1.5ºC (it is simply not possible to calculate the Tyndall budgets for 1.5 ºC[18]). So the Tyndall budgets are consistent with IPCC global carbon budgets of 1.7ºC degrees of global heating. This is not 1.5ºC because, essentially, there are not enough degrees of freedom in the system to produce budgets consistent with 1.5ºC, the lowest end of the Paris target[19].

[17] at 50% chance in the IPCC SR1.5 report

[18] at a greater than a 17% chance

[19] see Tyndall's "Factor of Two" research paper, Kevin Anderson, John F. Broderick & Isak Stoddard (2020) A factor of two: how the mitigation plans of 'climate progressive' nations fall far short of Paris-compliant pathways, Climate Policy, 20:10, 1290-1304, DOI: 10.1080/14693062.2020.1728209

99 The graph above is taken from[20] and illustrates the difference between CCC and Tyndall carbon budgets. In simple terms, the carbon budget is the area under the annual emissions trajectory curve. Issues such the shape of the curve, front-loading or back-loading emissions reductions can produce vastly different curves and corresponding *areas under the curve*.

100 So it is possible for the UK to meet net-zero at 2050 via vastly different overall carbon budgets – the green line in the graph meets the global budget for 1.7 ºC, the blue CCC pathway overshoots this temperature target. Therefore "net-zero", in itself, is not a good measure of compliance with the Paris agreement temperature target whereas a science-based carbon budget is.

101 Note, the details of the carbon accounting differ, so it is not easy to get a like-for-like comparison between the science-based carbon budget from Manchester Tyndall and the Climate Change Committee budgets. For further information, see footnotes[21].

102 Simply put the UK carbon budgets are based on the policy-driven target of net-zero by 2050. However, such a policy-driven target does not consider the overall emissions generated in how the UK gets to net-zero[22].

103 A key issue is the "area under the curve" in the emissions trajectories. Science-based carbon budgets such as those from the Tyndall Centre, research that the UK Department of Business, Energy and Industrial Strategy supported, demonstrate that the area under their curve of their emissions trajectories is consistent with the global carbon budgets from the Intergovernmental Panel on Climate Change (IPCC).

[20] [redacted]

[21] "How the UK Climate Change Committee steals from the carbon budget", blog post by Professor Peter Somerville, 8th July 2021, [redacted] and "Calculating a fair carbon budget for the UK". blog post by Professor Peter Somerville, 8th July 2021, [redacted]

[22] This is clearly evidenced by the overarching UK Net Zero Strategy being found unlawful (London High Court judgment, July 18th 2022) and the UK Government accepting this by not appealing (October 13th 2022).

9.6 The risk in delivering Climate Change Committee (national) budgets

104 Even on their own terms, these policy-based targets are far from guaranteed to be delivered with the state of current climate policy. This is evidenced by the recent legal case[23] on the UK Net Zero Strategy (NZS) where it was found that the policies had not been properly quantified, and that the UK Government had not considered several things, especially **the risk to delivery of the policies** in their strategy for meeting the sixth carbon budget. The UK Government have accepted the NZS is unlawful[24] and are not appealing.

105 Further on 29th June 2022, the Climate Change Committee (CCC) submitted its "Progress in reducing Emissions[25] - 2022 Report to Parliament" and found that "credible plans" existed for only 39% of the required emissions reduction to meet the UK Sixth Carbon Budget. This indicating a clear policy shortfall in policy on Climate Change across the UK, see Appendix D.

106 Over the period to 2050 in the UK, the Tyndall Centre found that at least two times as much carbon would be produced comparing the UK carbon budgets with their own science-based targets[26]. If the science-based budgets from Tyndall Centre can only deliver a UK contribution towards 1.7°C at best, then the CCC budgets for both the UK and Scotland are only consistent with a much-greater global heating temperature target with more than twice as many emissions being produced by 2050. Note the UK's obligation under the Paris Agreement is to "*keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius*".

107 In short, science-based targets give a far more accurate picture for assessment and risk analysis than nationally legislated carbon budgets. This especially applies to assessing whether infrastructure is consistent with the UK's commitments under the Paris Agreement. The best practice IEMA guidance also strongly encourages the use of science-based carbon budgets for local and regional contextualisation.

108 The key takeaway at this point is that to assess whether the scheme complies with the UK net-zero target, then comparisons are made with the national budgets and the Net Zero Strategy. However, to assess whether the scheme complies with the UK's international obligations under the Paris agreement, then comparisons need to be made with science-based carbon budgets and local/sector scaled versions of them, such as the Tyndall budgets.

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[23] See the judgment at [redacted] and the Court's Order at [redacted]

[24] "Government accepts its flagship climate strategy is unlawful", [redacted]

[redacted]

[26] "Factor of two" paper as above

10 APPENDIX C: Not used

11 APPENDIX D: CLIMATE CHANGE COMMITTEE (CCC) 2022 PROGRESS REPORT

109 On 29th June 2022, the Climate Change Committee (CCC) submitted its "Progress in reducing Emissions - 2022 Report to Parliament" (referred to as CCC _2022_PROG[27]).

110 The report finds that overall "credible plans" exist for only 39% of the required emissions reduction to meet the Sixth Carbon Budget (CCC _2022_PROG/page 22). This means that **61% of the required emissions reductions for the 6th carbon budget are not even secured "on paper" yet**.

111 CCC _2022_PROG/Figure 3.13 reproduced below shows the relevant data for "credible plans" and other categories for the surface transport sector.

[27] Climate Change Committee, "2022 Progress Report to Parliament - The CCC's annual assessment of UK progress in reducing emissions",

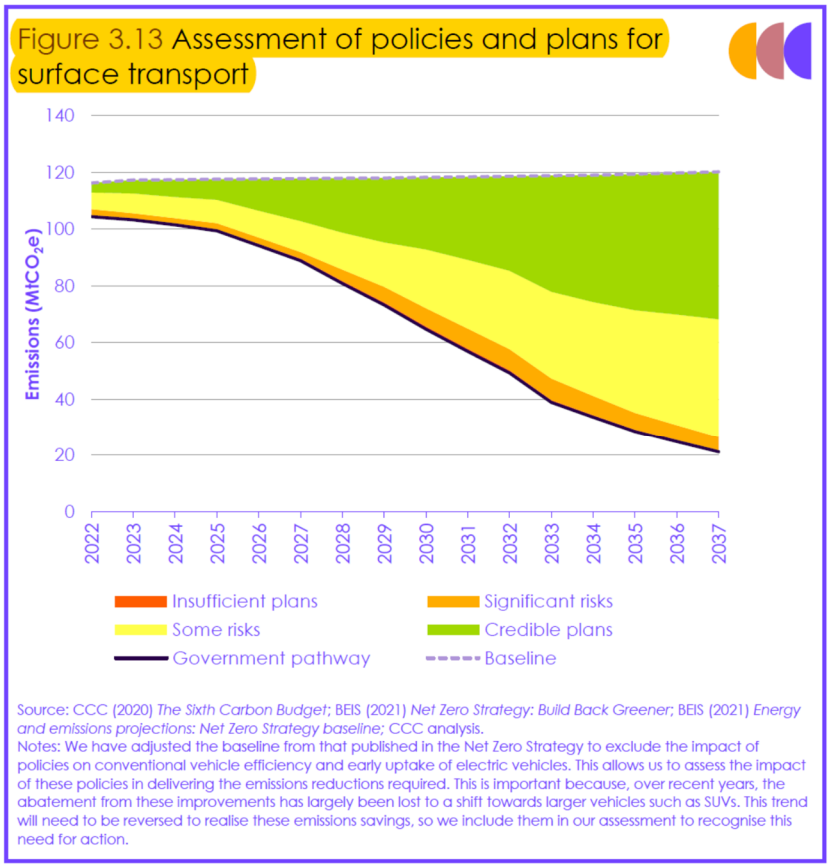

Figure A120.CEPP.WR.Fig-3: CCC assessment of UK transport policies (2022 Progress Report, reproduced)

11.1 Half the emission reductions for surface transport to meet the 6th carbon budget are not secured

112 The spreadsheet "Progress in reducing emissions – 2022 Report to Parliament – Charts and data" (referred to as CCC_2022_DATA[28]) provides the breakdown of the data behind Figure 3.13 above from the report. Delivery of the "Government pathway" requires a reduction of 99.03 MtCO2e against the "Baseline" of 120.23 MtCO2e by 2037. CCC identify credible plans for 51.97 MtCO2e of this (ie **only 52.5%** of the total). So in the surface transport sector **about half of the required emissions reductions for the 6th carbon budget are not even secured "on paper" yet**, revealing the true extent of the "delivery gap" in transport decarbonisation policy from the Government's own advisors on climate change delivery.

[28] Climate Change Committee, "Progress in reducing emissions – 2022 Report to Parliament – Charts and data", [redacted]

113 In identifying barriers to closing the delivery gap, the report is clear in identifying that there is currently no vision from the Government for traffic reduction, as it states at page 130 "*However, the Government has not yet set out a clear vision of the extent of traffic reduction that is desirable, nor a coherent set of policies to deliver this.*" __

114 On page 139, the report identifies that "*the Scottish Government has committed to reducing overall car mileage by 20% by 2030*" and that "*the Welsh Government has also recently committed to reducing the car miles driven per person by 10% by 2030*". By contrast in England, £24 billion is still allocated for Roads Investment Scheme 2 (RIS2) and "*this still provides considerable funding for new roads* ***which will induce increased demand***".

115 In the section "Recommendations to the DfT" (CCC _2022_PROG/page 571), these recommendations are included:

> *"Set out, through Active Travel England, guidance for* ***what actions local authorities should take to realise the Transport Decarbonisation Plan's commitment to half of all journeys in towns and cities being walked or cycled by 2030****. This should be accompanied by the required funding."*
>
> *"****Set out measurable targets for the contribution that reducing car travel*** *will play in delivering transport's Net Zero pathway."*
>
> *"****Reform the Transport Appraisal Guidance to ensure that it enables practitioners to make decisions that are consistent with the Net Zero pathway****. **DfT should consider whether a "vision and validate" approach to the future transport system might be more appropriate than a "predict and provide" one in this context**."*

116 These are just some of the recommendations which require solid and quantified plans to start to address the identified delivery gap in the surface transport policies in the NZS and the TDP. **The recommendations from the Government's advisors also make clear that policies to reduce traffic and set measurable targets for it do not exist, and that a new approach to road scheme appraisal is urgently needed.**

12 APPENDIX E: Transport Decarbonisation Plan, Figure 2

117 On the 14th July, 2021, the Government released its Transport Decarbonisation Plan[29] (TDP).

118 A graph of projections for decarbonising domestic transport in given in the TDP at Figure 2 and reproduced here:

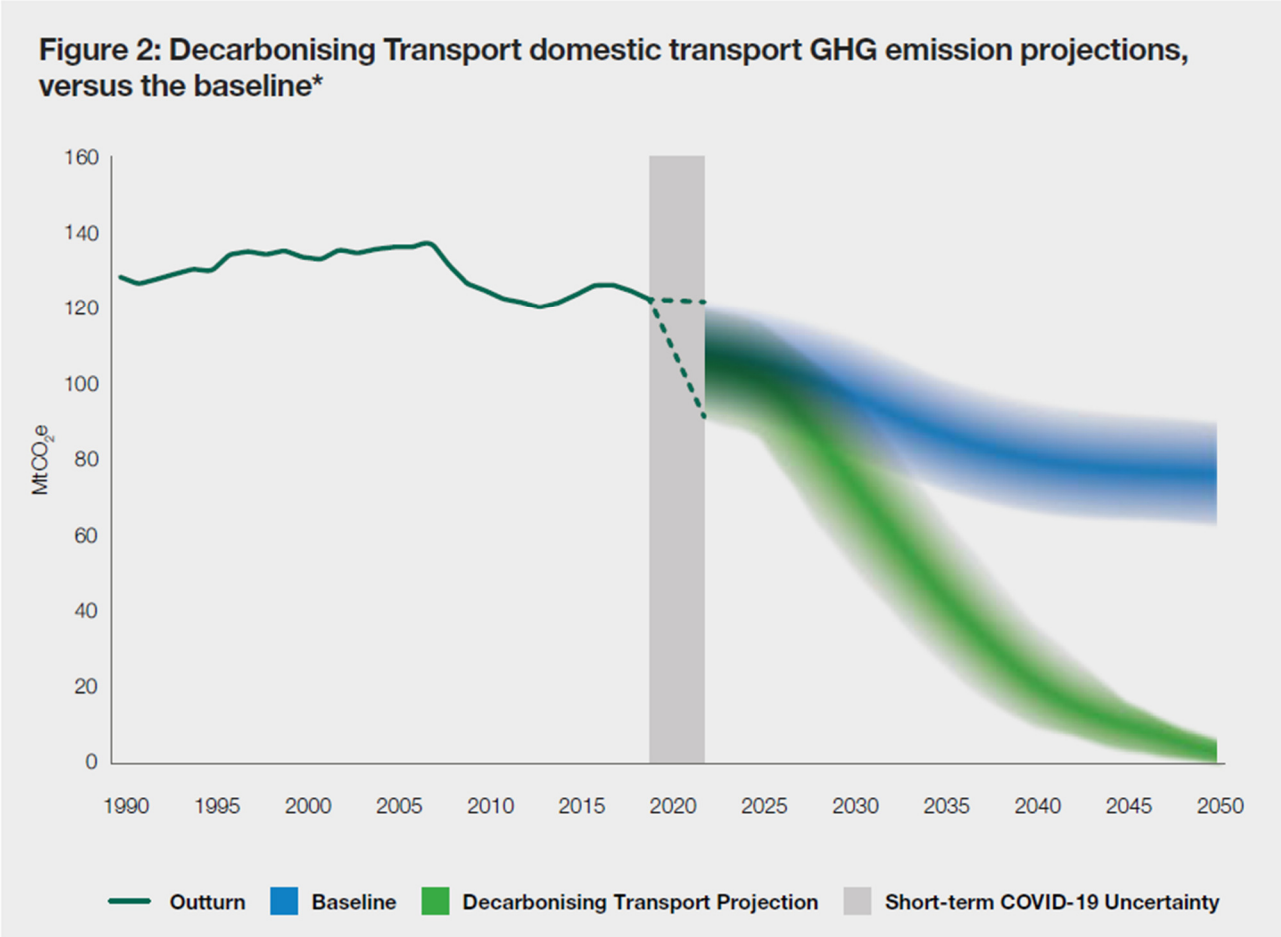

Figure A120.CEPP.WR.Fig-4: Transport Decarbonisation Plan Figure 2 (reproduced)

119 The graph is the same (but less refined than) NZS Figure 21.

[29] https://www.gov.uk/government/speeches/transport-decarbonisation-plan

13 APPENDIX F: EIA GUIDANCE DOCUMENTS

120 This section lays out guidance relating to the EIA Regulations.

121 Following the enactment of the reviewed EU EIA Directive "DIRECTIVE 2014/52/EU" in 2014, three guidance documents were published in 2017 on the screening[30], scoping[31] and EIA report writing[32] stages.

122 Each of these 2017 guidance documents state that they "*aim[s] to help Developers and consultants alike prepare good quality Environmental Impact Assessment Reports and to guide competent authorities and other interested parties as they review the Reports. It focuses on ensuring that the best possible information is made available during decision-making*".

123 Under "Climate change mitigation: Project impacts on climate change" [33] on page 39 of the EIA report writing guidance, it states:

> *"The assessment should take relevant greenhouse gas reduction targets at the* ***national, regional, and local levels*** *into account, where available. The EIA may also assess the extent to which Projects contribute to these targets through reductions, as well as identify opportunities to reduce emissions through alternative measures."*

124 Whilst for cumulative effects[34] at page 50:

> *"[They] can arise from … the interaction between all of the different Projects in the same area;"*
>
> *"… can occur at different temporal and spatial scales. The spatial scale can* ***be local, regional or global****, while the frequency or temporal scale includes past, present and future impacts on a specific environment or region.*" (our emphasis)

125 The guidance is promoted by the EU and identifies that Competent Authorities reviewing the EIA Report and using the information for decision-making, as one of its target audiences.[35]

From the same official webpage for the EIA Directive, further 2013 guidance is provided on "*Guidance on Integrating Climate Change and Biodiversity into Environmental Impact*

[30] [redacted]

[31] [redacted]

[32] [redacted]

[33] [redacted] PDF page 39

[34] [redacted] PDF page 52

[35] See "HOW TO USE THIS GUIDANCE DOCUMENT" section

Assessment". This guidance predates the 2014 Directive and was produced during the time of the 2011 EIA Directive "DIRECTIVE 2011/92/EU". The guidance was implemented for the European Commission under Study Contract No 07.0307/2010/580136/ETU/A3 with Members of the Commission Group of EIA/SEA National Experts and staff from three Directorate-General of the Commission[36]. It reflects the view of the Commission services of the best EIA practice, including those with transposed national regulations like the UK.

126 Section 4.4.2 of this guidance states:

> *"Judging an impact's magnitude and significance must be context-specific. For an individual project — e.g. a road project —* ***the contribution to GHGs may be insignificant on the global scale, but may well be significant on the local/regional scale, in terms of its contribution to set GHG-reduction targets.****"* (my emphasis)

I am concerned that the Applicant claims that the results of its appraisal of differential emissions against national budgets reveals an insignificant effect against national carbon budgets. The guidance rightly suggests that carbon emissions assessed at a local/regional scale may well be significant, as shown in my Contextualisations in the main text.

127 I have not been able to find any UK specific guidance relating to the EIA Regs that would provide different advice to the existing guidance on the official EU Commission webpage for the EIA Regs. It is therefore rational to apply guidance which was written to "*focus[es] on ensuring that the best possible information is made available during decision-making*" under the EIA Directive within the UK. Failure to not even consider such guidance, as is the case in the Environmental Statement, would be irrational.

[36] [redacted] The front-page states "This document benefited from Study Contract No 07.0307/2010/580136/ETU/A3, implemented for the European Commission by

Milieu Ltd, Collingwood Environmental Planning Ltd and Integra Consulting Ltd. The main authors were Jennifer McGuinn and Guillermo Hernandez from Milieu Ltd; Ric Eales, William Sheate and Jonathan Baker from Collingwood Environmental Planning; and Jiri Dusik from Integra Consulting. Maria Partidario of the Technical University of Lisbon and Helen Byron of the Royal Society for the Protection of Birds/Birdlife UK provided advice. Additional contributions about climate change were collected during the JASPERS workshops (March-April 2012). The text was also revised by Jiri Dusik. Members of the Commission Group of EIA/SEA National Experts (in particular, Paolo Boccardi, Susanna Eberhartinger-Tafill, Paul Fortuin, Aurora Hernando Garcinuno, Anna Kieniewicz, Gabrielle McKeown, Koen Maertens, Tadhg O'Mahony, Martine Moris, Kees Van Muiswinkel, Rainer Persidski, Claire Piens, Matthias Sauer, Roel Teeuwen, Adrian Vecino Varela) and staff of the European Commission's Directorate-General for Climate Action (Vaidotas Kuodys, Sami Zeidan), Directorate-General for Humanitarian Aid and Civil Protection (Yordanka Mincheva, Thomas de Lannoy) and Directorate-General for Environment (Stephanos Ampatzis, Szilvia Bosze, Marco Fritz, Milena Novakova and Przemyslaw Oginski) also Contributed"

14 APPENDIX G: Relevant Representation, Dr Andrew Boswell (as submitted 15 October 2022)

Dr Andrew Boswell, Climate Emergency Planning and Policy

I am an independent environmental consultant specialising in climate science, policy, and law, and I object to the A12 Chelmsford to A120 Widening Scheme:

(1) Chapter 15 of the ES presents estimates of the greenhouse gas (GHG) emissions for the assessment of significance of the scheme against the fourth, fifth and sixth carbon budgets. Only "scheme-only" estimates are given and assessed (eg the bottom line of Table 15-23), and this does not comply with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ("**the 2017 Regulations**"). One of the requirements of the 2017 Regulations is that the applicant must provide an environmental statement ("**ES**") including the cumulative impacts of the project and other existing and/or approved projects on climate change. The requirement can only be discharged by providing a separate cumulative assessment in Chapter 15.

(2) The so-called "TDP Sensitivity Test" given at Table 15.24 is not based on any standard, documented or official guidance. It is an "ad-hoc" method which is not even a sensitivity test in the real meaning of the term. (Fudge factor is a more precise description).

(3) The Institute of Environmental Management & Assessment (IEMA) "Assessing greenhouse gas emissions and evaluating their significance" guidance (February 2022) states that best EIA practice for GHGs is to use sectoral, regional and local carbon budgets to contextualise the project's GHG emissions. The IEMA guidance says comparison against national budgets is only of "limited value". Chapter 15 does not follow this guidance, and instead makes a sole assessment of significance against the entire UK economy carbon budget.

(4) The very large construction stage emissions of **428,626** tCO2e [Table 15-21] have been omitted from the cost side of the BCR. These would amount to over £100,000,000 at the 2025 government carbon valuation increasing the cost side. The value of cumulative operational carbon emissions from the scheme has not been used in the benefit side of the BCR calculations, because no cumulative assessment has been done.

(5) Section 15.8.6 highlights that Essex already has much greater emissions for transport (47.8%) than the East of England or the UK. The scheme has large construction emissions (**428,626** tCO2e) in the 4th carbon budget, and introduces new emissions into Essex from 2027 at levels of >140,000 tCO2e for both the 5th and 6th carbon budgets. These new emissions are so significant that they would have material impact on the ability of the Government to meet its carbon reduction targets (NNNPS 5.18 significance test).

(6) We are in a climate emergency, and recent record-breaking global heating and drought in the UK, Europe and around the world demonstrate that it is a crisis of ever-increasing dimensions. No scheme increasing carbon emissions on this scale, having a material impact of meeting UK carbon budgets, can be justified within the planning balance. Further, it is not morally acceptable for such a scheme to go ahead and add to increasing climate chaos.

15 APPENDIX H: RESUME, Dr Andrew Boswell

I am a retired scientist and environmental consultant, working at the intersection of science, policy, and law, particularly relating to ecology and climate change.

- Undergraduate degree, BSc 1977, 1st class honours, Chemistry, Imperial College London
- Postgraduate, DPhil 1981, Oxford University, supervisor Professor R J P Williams, FRS, in Structural Biology, protein binding sites and dynamics
- 1984-1993, software engineering, testing, simulation systems for high-level design and logic synthesis of Very Large Scale Integrated (VLSI) circuits
- MSc, 1994, Parallel Computing Systems, University of the West of England
- 1995-2006, Manager high-performance and computing service across science departments at the University of East Anglia (UEA). System management and scientific modelling including climate modelling.
- 2005-2017, Green Party Councillor and sometimes group leader, Norfolk County Council and Norwich City Council
- 2017-2022, Climate Emergency Policy and Planning. CEPP is my own consultancy to promote the necessary rapid response to the Climate Emergency in mainstream institutions, such as local authorities and government, through the lenses of science, policy, and litigation. Expert contributor to the proposed UK Climate and Ecology Bill[37]. Foundation for Integrated Transport[38]fellowship on "*Exposing the flaws in carbon assessment and transport modelling for road schemes*." Interested party and expert witness on many current UK infrastructure planning examinations[39]. Climate and science-based litigation on three schemes[40]: three judicial reviews launched in the London High Court in summer and autumn 2022.

[37] [redacted]

[38] [redacted]

[39] including A38 Derby Junctions; A417 Missing Link; A57 Link Road; A303 Stonehenge; A47 Blofield to North Burlingham; A47 North Tuddenham to Easton; A47 -A11 Thickthorn Junction; A47 Wansford to Sutton; A66 Northern Trans-Pennine Project; A720 Sheriffhall Roundabout, Edinburgh; Net Zero Teesside; Drax Bioenergy with Carbon Capture and Storage Project

[40] A47 Blofield to North Burlingham; A47 North Tuddenham to Easton; A47 -A11 Thickthorn Junction