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Examination Principle Issues	<ul style="list-style-type: none"> • Climate Change • Scope of Development and Environmental Impact Assessment • Lack of compliance with recent national legislative and policy changes on Climate Change, especially the Net Zero Strategy

DEADLINE D10 SUBMISSION

I am an independent scientist and environmental consultant, working at the intersection of science, policy, and law, particularly relating to ecology and climate change. I work as a consultancy called Climate Emergency Policy and Planning (CEPP). I have recently been awarded a Fellowship from the Foundation for Integrated Transport for research and study entitled “Exposing the flaws in carbon assessment and transport modelling for road schemes”.

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

- 1 The Net Zero Strategy (NZS) and the Transport Decarbonisation Plan (TDP) provide new policy background since the Environmental Statement was written. Both documents provide the same sector specific decarbonisation pathway, and implied targets, for the surface transport sector, and the NZS is legally binding policy under section 13 of the Climate Change Act 2008 (CCA). The NZS has weight in assessing the scheme in three ways:
 - A. compliance with the CCA itself of which it forms a core policy document;
 - B. compliance with NPPF 153 and NPPF required alignment with the CCA;
 - C. and the new requirement from DfT for TDP sensitivity testing in road scheme appraisal.

- 2 The Applicant’s Climate Change Position Statement [REP8-013] is riddled with flaws, including:

- A. The notion that **if** the traffic model contains all known road and land developments in the study, **then** it follows that all combinations of data, and differentiations of that data (eg DS-DM), extracted from the traffic model must be “inherently cumulative”. This is a defective notion as the latter does not universally follow the former. The flaw is fundamental to the Applicant’s non-compliance with the requirements of the Environmental Impact Assessment Regulations for cumulative assessment of impacts, in this case carbon emissions. Despite having dismissed this notion earlier in the Examination [REP5-030], I refute it again in section 3.1.
- B. No consideration has been given by the Applicant to the special case of the three A47 schemes, all sharing the same study area and in close proximity to each other, progressing in parallel through DCO Examinations. The Applicant has not taken up the clear opportunity afforded by a common transport model, and study area, to generate a cumulative carbon emissions assessment across these three schemes. This is a clear non-compliance with the requirements of the EIA Regulations for cumulative carbon assessment.

As warned from my Relevant Representation onwards, the Courts accept the importance of cumulative environmental impact assessment. The case of *Pearce v BEIS* [2021] EWHC 326 (Admin) is extremely relevant where a solus only environmental impacts assessment of a wind farm was found to be unlawful in a similar situation where more than one scheme was progressing through DCO examinations in a similar timeframe.

- C. False reliance on PINS Advice Note 17. This note does not address cumulative carbon assessment.
- D. Failure to identify the Net Zero Strategy (and TDP) as material consideration for the scheme.
- E. Use of out-of-date models, data and assessment methods including:
- i. An out-of-date Emission Factor Toolkit (EFT) which does not model emissions accurately between 2030 and 2050. Also out of date carbon factors and grid factors for assessing electric vehicle carbon emissions.
 - ii. No TDP Sensitivity Test assessment despite acknowledging DfT requiring it on other recent schemes (eg A38 Derby)
 - iii. Out-of-date traffic model – use of NATS 2015 where the local transport authority now uses NATS 2019 which covers the same study area. NATS 2019 is calibrated against baseline traffic flows which are 4 years more up to date than NATS 2015. The A47THI has already been modelled in NATS 2019 but the Applicant has chosen not to use the up-to-date modelling.

- 3 New carbon prices have been released by Government for carbon appraisal. These are substantially different in quanta from the carbon prices used in the Applicant's 60-year appraisal and economic case for the scheme. The economic case, and the Benefit Cost Ratio (BCR) need to be recalculated against the new carbon price data, and revised traffic modelling which corrects the above flaws. This should include: the construction carbon emissions on the cost side of the BCR; a solus quantification of the carbon emissions associated with the scheme based on the carbon impacts against the current environmental baseline; the full cumulative carbon emissions with other road and land development; a special case cumulative carbon emissions assessment of the three A47 schemes; all modelled with the up-to-date NATS 2019 model, and other identified data updates.
- 4 A fundamental issue remains that the Environmental Statement does not comply with the EIA Regulations. The Application should be refused on this ground alone.
- 5 The changes required to make the application viable and legitimate are substantial. The Applicant has unfortunately failed to consider the above points, or respond adequately on them, and make the relevant information available to the Examination. The SoS and ExA are not a position to safely determine the application, and the further information, data and modelling required will now be required to be obtained under EIA Regulations 20 necessitating further consultations.

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1 INTRODUCTION

1.1 *Deadline 10 (D10)*

6 This is my submission for Deadline 5. It follows my written representations at REP1-029, and REP5-030. I apologise to the ExA that I previously promised more submissions at deadline D6. Between December and February, I was involved providing care, with my family, to my dying father, who subsequently died in February, and I am only just returning to some normal life following these three months. However, the Applicant has now provided a Climate Change Position Statement, REP8-013, and I will respond more directly to it.

7 I will comment on:

- A. A47THI / REP8-013, the Applicant's Climate Change Position Statement.
- B. A47THI / REP8-012: Applicant's Responses to Submissions at Deadline 7.
- C. With reference to the Applicant's response of February 9th, 2022, to the Secretary of State Consultation letter on the **A38 Derby Junctions** scheme, **provided in Appendix D** which I refer to as RESP-8.122.

1.2 *Recent changes to relevant policy*

8 I previously reported to the ExA at D5:

- (a) The Government's Transport Decarbonisation Plan¹ (TDP) which requires ambitious quantifiable carbon reductions in transport at the local level was published on the 14th July, 2021. **Provided in Appendix B** and discussed in Section 2.
- (b) The Government's Net Zero Strategy² (NZS) backing the urgent need for ambitious quantifiable carbon reductions in transport, at the local level was published on 19th October, 2021. **Provided in Appendix C** and discussed in Section 2.
- (c) HM Treasury Green Book supplement providing specific guidance on how analysts should quantify and value emissions of GHGs³ was published in October 2021.

³ "Valuation of energy use and greenhouse gas: Supplementary guidance to the HM Treasury Green Book on Appraisal and Evaluation in Central Government"

- (d) Government policy paper⁴ setting out a revised approach to valuing GHG emissions, and revised carbon prices, in policy appraisal was published on 2nd September 2021. **Provided in Appendix A.**
- (e) An updated version of the DfT’s WebTAG guidance⁵ and TAG data book, including changes to emissions factors, was published on 29th November 2021
- (f) Highways England Carbon Reporting Tool⁶ was used to assess the GHG emissions for scheme construction and maintenance was withdrawn on 21 September 2021. It was replaced with the National Highways Carbon emissions calculation tool⁷.

1.3 Definitions

- 9 I refer to ExA to my submission at REP5-030 for discussion on definition and usage of “cumulative” and my definitions of “absolute emissions” and “differential emissions”, as applied to carbon emissions.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1024054/1.Valuation_of_energy_use_and_greenhouse_gas_emissions_for_appraisal_CLEAN.pdf

⁴ “Valuation of greenhouse gas emissions: for policy appraisal and evaluation”, [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1024054/1.Valuation_of_energy_use_and_greenhouse_gas_emissions_for_appraisal_CLEAN.pdf](#)

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2 CHANGES IN LOCAL AND NATIONAL POLICY

2.1 Transport Decarbonisation Plan

10 On the 14th July, 2021, the Government released its Transport Decarbonisation Plan⁸ (TDP).

11 The Rt Hon Grant Shapps MP, Secretary of State for Transport states in the foreword:

*“But **we cannot, of course, simply rely on the electrification of road transport**, or believe that zero emission cars and lorries will solve all our problems, particularly for meeting our medium-term carbon reduction targets to 2035. Road traffic, even on pre-pandemic trends, was predicted to grow by 22 percent from 2015 to 2035 much of it in cities, where new roadbuilding is physically difficult and disadvantages communities. We cannot pile ever more cars, delivery vans and taxis on to the same congested urban roads. That would be difficult for the roads, let alone the planet, to tolerate. **As we build back better from the pandemic, it will be essential to avoid a car-led recovery.**”*

(my emphasis)

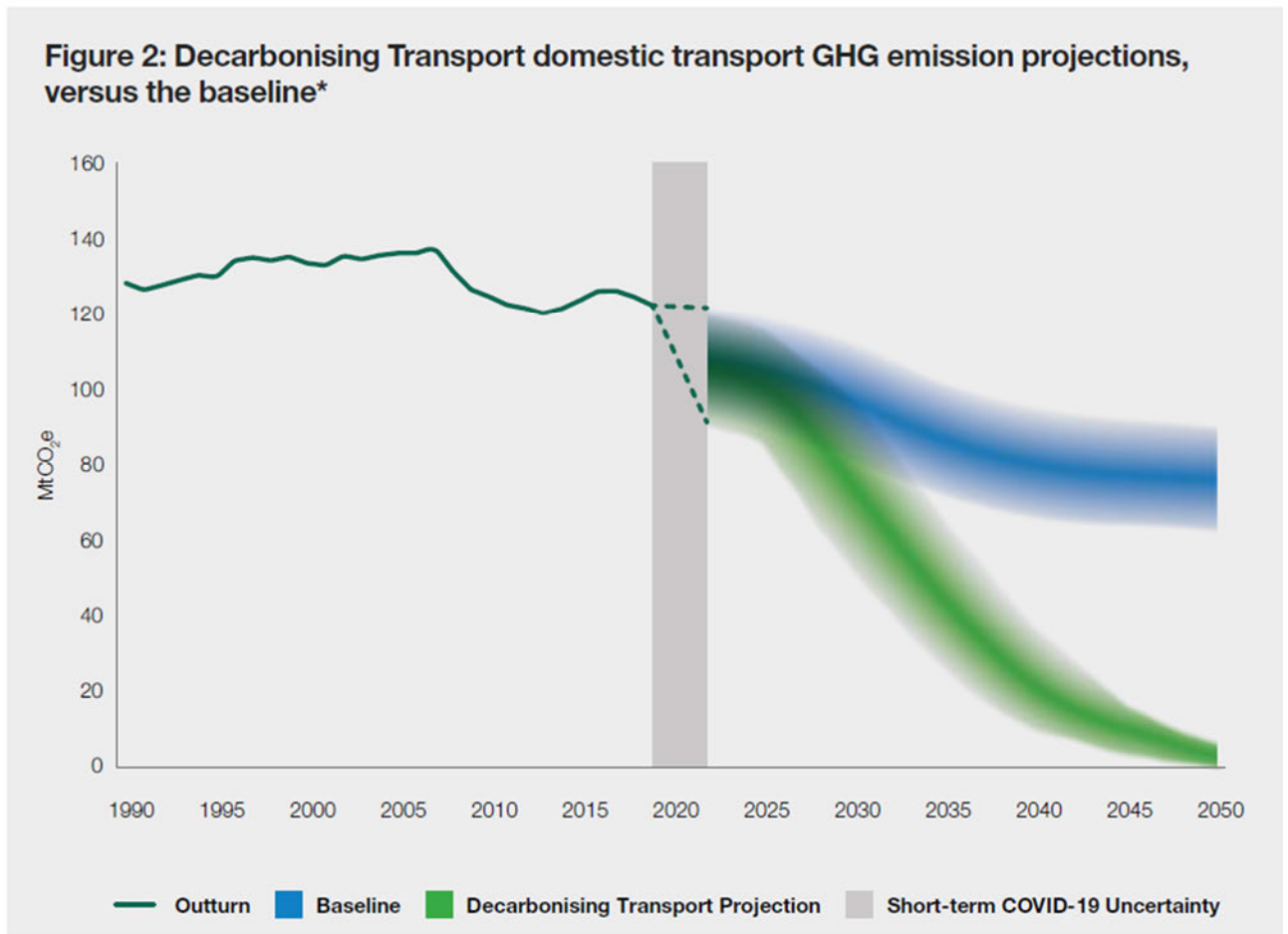
12 On local transport challenges, the TDP states:

*“We will drive decarbonisation and transport improvements at a local level by making quantifiable carbon reductions a fundamental part of local transport planning and funding. Local Transport Plans (LTPs) are existing statutory requirements that set out holistic place-based strategies for improving transport networks, proposed projects for investment and, ultimately, lay out how key objectives will be achieved. **Going forward, LTPs will also need to set out how local areas will deliver ambitious quantifiable carbon reductions in transport, taking into account the differing transport requirements of different areas. This will need to be in line with carbon budgets and net zero.**”*

13 This indicates that the Government consider it essential to avoid car-led delivery, and are aware that electrification of road transport is not sufficient to tackle road-use emissions.

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

⁸



2.2 Net Zero Strategy

- 15 Published later in October 2021, the Government’s Net Zero Strategy (NZS) backed the urgent need for ambitious quantifiable carbon reductions in transport, at the local level, with this statement:

“We are driving decarbonisation and transport improvements at a local level by making quantifiable carbon reductions a fundamental part of local transport planning and funding. Local Transport Plans (LTPs) – statutory requirements that set out holistic place-based strategies for improving transport networks and proposed projects for investment – will need to set out how local areas will deliver ambitious carbon reductions in line with carbon budgets and net zero.”

- 16 Critically, the NZS also sets out delivery pathways which link to existing carbon budgets and targets, and define indicative targets based on the pathways for each sector. For example, as far as the Paris Agreement and International Emissions Targets, the NZS Technical Annex states at page 307:

“International emissions targets

7. *The 2015 Paris Agreement under the UN established the goal of keeping the global mean temperature rise to well below 2°C, whilst pursuing efforts to limit the rise to under 1.5°C. Under the Kigali amendment to the Montreal Protocol, the UK has also committed to reducing F-gas emissions by 85% on 2011-2013 levels by 2036.*

8. *Under the Paris Agreement, the UK announced its Nationally Determined Contribution (NDC) in December 2020, which commits the UK to reduce net greenhouse gas (GHG) emissions by at least 68% by 2030 compared to 1990 reference year levels. This represents an increase of ambition on the fifth carbon budget, which covers the years 2028-2032.*

9. *The UK will therefore need to overachieve on the fifth carbon budget to meet its international climate targets and stay on track for the sixth carbon budget. Accordingly, the policies and proposals, delivery pathway, deployment assumptions and any other analysis presented in the Net Zero Strategy for the fifth carbon budget period are consistent with the action required to meet the UK’s 2030 NDC.”*

(my emphasis)

17 And for UK carbon budgets:

“Climate Change Act

... *In 2019, on advice of the CCC, the UK committed to reaching net zero emissions by 2050 and consequently the target reduction in the Act was increased to at least 100%.*

3. *To keep the UK on a pathway to achieving the 2050 target, the Government is obliged to set legally binding, five-year caps on emissions – carbon budgets – twelve years in advance and then to publish a report setting out policies and proposals for meeting that budget and those budgets previously set.*

4. *The Net Zero Strategy is the means by which we satisfy the requirements of the Act in relation to policies and proposals for meeting the current carbon budgets.*

...

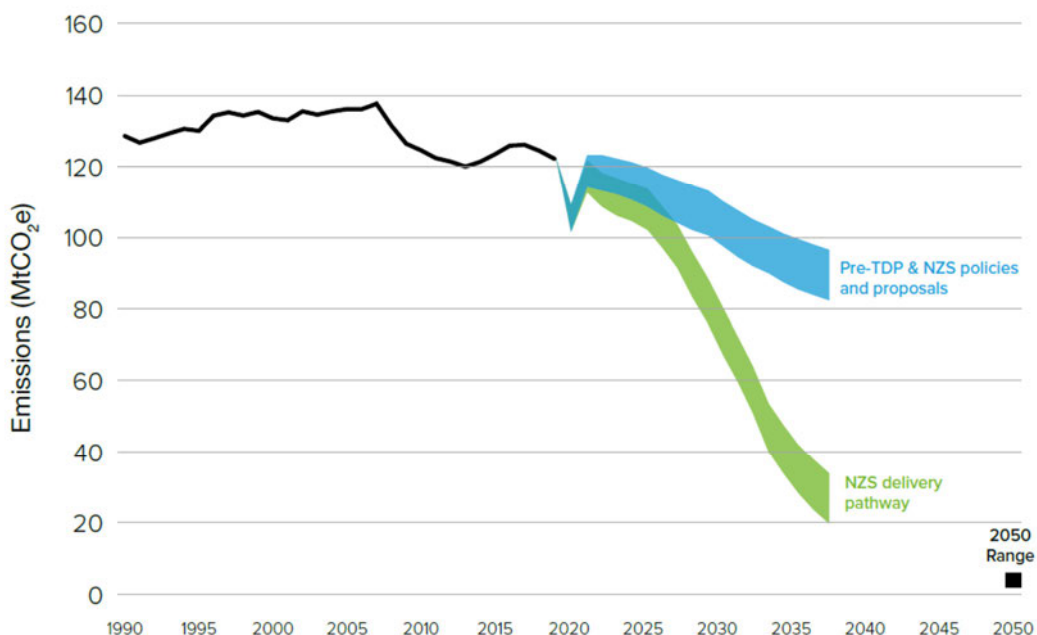
6. *To show how we will meet our climate targets, including legislated carbon budgets up to and including the sixth carbon budget, the Net Zero Strategy contains both an indicative delivery pathway and illustrative 2050 net zero scenarios. The pathway, which stretches to the end of the Sixth Carbon Budget period in 2037, provides an indicative trajectory of emissions reductions which we aim to achieve through the*

Strategy and through delivery of the policies and proposals outlined. It therefore indicates the timescales over which we expect those policies and proposals to take effect to deliver our targets. The pathway is designed to be broadly consistent with all three of the illustrative 2050 scenarios set out in the Journey to Net Zero chapter of the Net Zero Strategy. There is uncertainty associated with our decarbonisation pathway through to 2037 and the 2050 scenarios – the exact path we take to meet our climate targets is likely to differ and must respond flexibly to changes that arise over time.”

(my emphasis)

- 18 The NZS delivery pathway, related to road transport, in the Figure below corresponds to a fall in residual emissions from domestic transport emissions (excluding aviation and shipping) by around 34-45% by 2030 and 65-76% by 2035, **relative to 2019 levels** (see Figure 21 from the NZS reproduced below).
- 19 Figure 21 of the NZS, is a refined version of the Figure 2 of the TDP reproduced above and shows the linkage between the TDP and the NZS. Essentially the indicative delivery pathway for domestic transport has been carried forward from the TDP to the NZS.

Figure 21: Indicative domestic transport emissions pathway to 2037



Source: BEIS analysis

- 20 The Applicant has claimed that there is no sector specific target under UK Climate Change legislation. However, the NZS (and TDP) which is the delivery policies for the CCA targets and budgets has clearly laid out an indicative delivery pathway for surface

transport as one of the 11 sectors under the Climate Change Act budgets. **This is a sector specific target for surface transport under UK Climate Change legislation.**

- 21 **The Applicant should make an assessment of the absolute carbon emissions associated with the study area for the scheme against the delivery pathway, lower and upper bounds, for both 2030, indicative of meeting the UK NDC under the Paris agreement, and 2035, indicative of meeting the 6th carbon budget, and therefore net zero by 2050.**
- 22 I note that National Highways report on the A38 Derby and other Schemes [RESP-8.122, supplied in Appendix D] that the DfT has advised that a sensitivity test based on the impact of the policy measures set out in TDP (effectively the NZS) should now be undertaken for schemes. I will discuss this further later.
- 23 The policy interventions on the NZS and TDP, such as electric vehicles and modal shift, only effect operational road-user emissions, and do not address construction emissions which have a large impact in the period to 2030. Construction emissions are absolute emissions generated on top of the usual road-user emissions, and therefore add emissions to the transport sector whilst it already has the extremely challenging targets as above for 2030 and 2035. I also note that the economic cost of construction emissions has not been factored into the BCR calculations, and should be at the new carbon price data from the Treasury.

2.3 Net Zero Strategy in context of the Planning System, and this DCO application

- 24 The NZS is the most up-to-date delivery mechanism for the Climate Change Act (CCA). As such it is a legally binding policy document. CCA Section 13 imposes a duty of the Secretary of State to prepare such a document, and the NZS is the document of proposals and policies that the Secretary of State has prepared, and laid before Parliament under CCA Section 14, to meet the UK carbon budgets and targets.
- 25 The relevant budgets and targets include:
 - A. The UK Nationally Determined Contribution under the Paris Agreement of 68% reduction of carbon emissions by 2030
 - B. The target of 78% carbon emissions reduction by 2035 under the 6th Carbon Budget
 - C. The 4th, 5th and 6th carbon budgets
 - D. The net-zero target of net-zero carbon emissions by 2050
- 26 The planning system is required to take account of the NZS, as the NPPF 152 states that the planning system should “*help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions*” whilst NPPF 153 states:

“Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures ^{<footnote 53>}.”

Where footnote 53 says *“In line with the objectives and provisions of the Climate Change Act 2008.”*

27 The NZS is the most up-to-date policy document which expands proposals and policies to meet the objectives and provisions of the Climate Change Act, and therefore, it is of material weight in planning decisions.

28 Further the NZS itself at page 252 says:

“19 We will make sure that the reformed planning system supports our efforts to combat climate change and help bring greenhouse gas emissions to net zero by 2050. For example, as part of our programme of planning reform we intend to review the National Planning Policy Framework to make sure it contributes to climate change mitigation and adaptation as fully as possible.”

29 This indicates that further strengthening of the NPPF can be expected on top of the already very clear alignment of the planning system to the Climate Change Act via the extant NPPF, and to the NZS as the delivery mechanism for the CCA.

30 Therefore the NZS and TDP are government policies to which the ExA and SoS must give weight in determining this DCO Application. Currently, the Applicant’s Environmental Statement is not aligned to the NZS or the TDP. We will discuss this further in a later section.

3 RESPONSE TO APPLICANT'S CLIMATE CHANGE POSITION STATEMENT

31 This is provided at Volume 9, section 9.26 of the Environmental Statement [REP8-013].

3.1 [REP8-013] Section 3 - Assessment of Cumulative Effects – Solus v Cumulative

32 The applicant describes their traffic model as being “inherently cumulative” at the bottom of page 3, and going over to page 4, as it contains data about:

“1) The Proposed Development and adjoining Strategic Road Network and local road network;

2) Other Proposed Developments promoted by National Highways in the near vicinity of the Proposed Development with high certainty that they are to be progressed i.e. progressed beyond preferred route announcement stage;

3) They are based on discussions with the relevant planning authority, of foreseeable developments promoted by third parties as likely to be developed in a similar timeline to the proposed National Highways' Proposed Development. Knowing where the proposed third party development is to be sited, the extents and types of development, and the timescales of when it is to be completed are requirements to ensure that the third party developments can be reasonably described in the traffic model; and

4) National government regional growth rates which include a representation of likely growth rates excluding known planning developments already included in the traffic model. This is represented by DfT's NTEM/TEMPRO5 growth factors for car usage, and growth in freight is derived from DfT's National Transport Model6.”

33 I do not dispute that the Applicant's traffic model contains all these elements.

34 The problem in the Applicant's position is how it then quantifies and assesses the carbon for the scheme via different configurations of the traffic model.

35 The Applicant describes how they quantify the carbon for the scheme as follows:

“In terms of operational carbon, when National Highways evaluates the changes in CO2e emissions of their Proposed Developments they do so by comparing changes in the road traffic on the Strategic Road Network and local road network between the ‘without Proposed Development scenario’ and the ‘with Proposed Development scenario’”.

36 This means that the applicant calculates a differential quantity of carbon emissions for the scheme which is the difference (DS-DM), **solely**, of the all the elements of the network

[ie: 1) to 4) above] as the DS case, and all the elements of the network except the scheme as the DM case. In REP5-030, Table, I represented this as follows:

Model configuration name	Performance-oriented (ie as in APP-125)	
	DM (Perf, baseline)	DS (Perf, all)
2015 Baseline Highway network	✓	✓
A47THI scheme	✗	✓
A47BNB	✓	✓
A47NTE	✓	✓
NWL	✓	✓
Additional major highway schemes, unspecified	✓	✓
11 Local developments (APP-125, 4.3.23, uncertainty log)	✓	✓
Forecast changes in trip demand (VDM)	✓	✓

Table 1

- 37 The red ellipse indicates the only change in the configuration between the DM and DS scenarios is the presence, or not, of the A47THI in the modelling, as the Applicant says above.
- 38 The important point is that although the DS and DM traffic models in this case may be described as “inherently cumulative”, **the quantification produced by the differentiation (DS-DM) is “solus” in the sense described by Mr Justice Holgate in in Pearce v BEIS [2021] EWHC 326 (Admin)**. For the EIA Regulations, it is necessary to clearly distinguish solus and cumulative assessment, as Mr Justice Holgate does: solus⁹ being the impacts of a scheme in isolation. In the Pearce case, Mr Justice Holgate ruled that the evaluation of (onshore) environmental impacts was required **both** for the windfarm in question (under DCO planning application) in isolation (**ie solus**), and also the windfarm in combination with another windfarm under a parallel DCO planning application (**ie cumulative**).
- 39 The Applicant continues:

“This takes into account the assessment of the Proposed Development and all other developments likely to have an influence on the Proposed Development and on the area the Proposed Development is likely to influence.”

- 40 It is a truism that the presence of all elements of data in the traffic model has an influence on the outcome, but it is not a particularly helpful truism in understanding the carbon impacts. There are two key issues here:

⁹ Solus means, here, “alone; separate” as in the first definition in the Collins on-line dictionary

- A. Fundamentally, the “influence” of all other developments **is not the same** as **quantifying** their environmental impact, in this case on the EIA receptor of GHG emissions, which is what the EIA Regulations require. The presence of their influence in the data output is not the same as quantifying their environmental impact and is no substitute for it.
- B. The nature and quantification of the “influence” is not addressed. This can be understood by considering another possible **solus** quantification based also on a (DS-DM) differentiation but from different configurations of the traffic model. This is derived from REP5-030, Table 2.

Model configuration name	EIA Regs compliance-oriented (eg: for impact assessment of GHGs)	
	<i>DM</i> (GHG, baseline)	<i>DS</i> (GHG, scheme)
2015 Baseline Highway network	✓	✓
A47THI scheme	✗	✓
A47BNB	✗	✗
A47NTE	✗	✗
NWL	✗	✗
Additional major highway schemes, unspecified	✗	✗
11 Local developments (APP-125, 4.3.23, uncertainty log)	✗	✗
Forecast changes in trip demand (VDM)	✓	✓

Table 2

41 Here, the quantification is made by considering the scheme when it is added, in isolation or solus, to the current environmental baseline. In this case, there is no influence from other developments which follow on after the scheme’s implementation. This model provides a more accurate description of the journey trips which are attributable to the scheme itself as it quantifies the impact of building out the scheme into the current environmental baseline

In the Applicant’s solus calculation (ie Table 1 above) journey trips attributable to the scheme may actually be accounted for in the DM case. This raises the quantum of the DM, and reduces the DS-DM differential, making it a false signal of the real impacts.

42 The by-far preferable way to understand the carbon emissions of the scheme, in isolation, is to perform the solus quantification against the current environmental baseline (ie as Table 2 above), and then perform the Applicant’s version (ie as Table 1 above) as a sensitivity test on the “influence” that results from considering the other development.

43 Returning to the requirements of the EIA regulations, and the fundamental requirement, for **quantifying** the environmental impacts of the scheme with all other developments for cumulative carbon assessment. This may be done as I previously submitted in [REP5-030], Table 2, reproduced below [Table 3 in this document]. The required calculation is $DS (GHG, all) - DM (GHG, baseline)$ in my nomenclature which has been fully explained in REP5-0130.

	Performance-oriented (ie as in APP-125)		EIA Regs compliance-oriented (eg: for impact assessment of GHGs)			Example sensitivity test
	<i>DM (Perf, baseline)</i>	<i>DS (Perf, all)</i>	<i>DM (GHG, baseline)</i>	<i>DS (GHG, scheme)</i>	<i>DS (GHG, all)</i>	<i>DS (STI)</i>
2015 Baseline Highway network	✓	✓	✓	✓	✓	✓
A47THI scheme	✗	✓	✗	✓	✓	✓
A47BNB	✓	✓	✗	✗	✓	✗
A47NTE	✓	✓	✗	✗	✓	✗
NWL	✓	✓	✗	✗	✓	✗
Additional major highway schemes, unspecified	✓	✓	✗	✗	✓	✗
11 Local developments (APP-125, 4.3.23, uncertainty log)	✓	✓	✗	✗	✓	✓
Forecast changes in trip demand (VDM)	✓	✓	✓	✓	✓	✓



Table 3

44 In summary:

- i. The Applicant has submitted a single quantification of carbon. It is a solus quantification, and any assessment based on comparing it to benchmarks (such as the TDP delivery pathway or carbon budgets) is consequently also only a solus assessment. This has already been explained in detail in REP5-030.
- ii. The solus quantification is the wrong solus quantification. The carbon emissions of the scheme against the existing environmental baseline needs to be quantified, assessed and understood first (DS-DM as in Table 2 above). The applicant's DS-DM (as Table 1 above) could be an interesting sensitivity test, but it should not be considered as the primary solus quantification (and assessment).
- iii. Further work is required, and should be required under EIA Regulation 20, to make a cumulative quantification of the carbon impacts of the scheme, and an assessment based upon that.

3.2 The special case of THREE A47 schemes at planning examination in parallel

- 45 The above analysis applies generically to road scheme appraisal. However, with the current planning application for the A47THI, there is a special case which is TWO other road schemes for the A47 also currently at DCO planning examinations and determination.
- 46 I made a request to the three ExA's for the cumulative carbon emissions to be considered together for the A47BNB, A47NTE and A47THI examinations [AS-011, October 24th, 2021], given these three A47 schemes are all contained within a 12-mile radius of the centre of Norwich, and progressing through DCO planning at the same time.
- 47 The cumulative effects of these three schemes should be considered together for both construction emissions and operational emissions. This is further data that should be required under EIA Regulation 20 as it amounts to a significant change in the Environmental Statement for the scheme (and also the other schemes).
- 48 The Applicant has failed completely to respond to this issue, and instead has pushed their faulty notion that placing all elements of known development into the traffic model somehow makes any quantification, and subsequent assessment, "inherently cumulative". This is completely false as I have shown above, and in previous submissions. I have shown quite unambiguously above that data can be extracted from the traffic model, by a differential DS-DM process, in various configurations – multiple configurations generating solus quantities are possible, and multiple configurations¹⁰ generating cumulative quantities are possible. The fact that the traffic model contains all the elements of known development is neither here, nor there, in determining whether a quantification calculation and assessment based on it is solus or cumulative. The postulation from the Applicant of the "inherently cumulative" traffic model is a false distraction perpetuated to confuse the issue. **Fact: we have not been confused by it.**
- 49 There are strong parallels with the Pearce windfarm case here. More than one scheme was progressing through a DCO planning process. The Court found the consideration of the first scheme with only a solus assessment of environmental impact to be unlawful. Exactly the same situation arises here – the A47THI scheme has only been assessed for carbon by a solus quantification and assessment. The cumulative impacts of the A47BNB and A47NTE schemes with the A47THI scheme have not been quantified or assessed.
- 50 This is despite traffic models existing where each scheme is defined at a high level of precision, making it trivial to actually perform the necessary cumulative carbon quantification.

¹⁰ The cumulative quantification shown in Table 3 is just one possible cumulative configuration: sub-sets of it are entirely possible. For example, the A47THI could be quantified and assessed with the A47BNB and A47NTE, but with no other road or land developments.

51 As previously noted in AS-011, Applicant's solus calculation of the construction carbon emissions for each of the schemes is already quantified: A47BNB 25,765¹¹ tCO₂e; A47NTE 87,727¹² tCO₂e; and A47THI 25,946¹³ tCO₂e. This gives rise to a cumulative value of 139,438 tCO₂e in the 4th carbon budget across the three schemes before operation emissions are even considered.

This is a large amount of carbon emissions: by comparison, the total carbon emissions from transport in the Norwich, Broadland and South Norfolk Council areas in 2019 was 789,900 tCO₂e – so the construction emission from these schemes amount to over 17% of the annual emissions across the three local authorities.

52 The fact that the Applicant has not even attempted to resolve this issue, approximately 5 months since my AS-011 letter to the ExA's, places the ExA and the SoS in a difficult situation. The Application and Environmental Statement do not comply with the EIA Regulations on cumulative carbon assessment as I have demonstrated in REP1-029, REP5-030 and this document.

However, even a blindingly obvious cumulative carbon quantification and assessment of the three A47 schemes together has not been attempted, and the case law from Pearce suggests very strongly that the Courts would consider that it should have been. Any determination by the SoS must take the Pearce judgement into account. It must of course also take the EIA Regulations into account which this situation also does not comply with.

3.3 [REP8-013] Section 3 - Assessment of Cumulative Effects – PINS Advice Note 17

53 The Applicant states [REP8-013]:

'In essence, as both with and without Proposed Development scenarios already include all likely developments and traffic growth factors, the assessment is inherently cumulative as regards operational carbon emissions. This is a state of affairs recognised in general terms in paragraph 3.4.4 of the Planning Inspectorate's Advice Note 17 ("Cumulative effects assessment relevant to nationally significant infrastructure projects"), the first two sentences of which state that:

"Certain assessments, such as transport and associated operational assessments of vehicular emissions (including air and noise) may inherently be cumulative assessments. This is because they may incorporate modelled traffic data growth for future traffic flows. Where these assessments are comprehensive and include a worst case within the defined assessment

¹¹ Section 14.8.3, A47 BLOFIELD TO NORTH BURLINGHAM DUALLING, Environmental Statement Chapter 14 [TR010040/APP/6.1, REP2-002]

¹² Section 14.8.3, A47 NORTH TUDDENHAM TO EASTON DUALLING, Environmental Statement Chapter 14 Climate [TR010038/APP/6.1, APP-053]

¹³ Section 14.8.3, A47/A11 THICKTHORN JUNCTION, Environmental Statement Chapter 14 Climate [TR010037/APP/6.1, APP-051]

parameters, no additional cumulative assessment of these aspects is required (separate consideration may be required of the accumulation or inter-relationship of these effects on an individual set of receptors e.g. as part of a socio economic assessment).” ’

- 54 The first sentence is false. As demonstrated above, the quantification and assessment made by the Applicant of carbon emissions in the Environmental Statement is, not just essentially, but also solely and purely **a solus one**.
- 55 PINS Advice note 17 does not address cumulative carbon assessment. There is no reference to it in the quoted section, but furthermore there is no reference to it in the entire document¹⁴.
- 56 I have unambiguously shown that the distinguishing feature on the Applicant’s approach is to consider differential emissions, that is DS-DM where DS and DM are absolute carbon emission values output from the traffic model. The quantification and assessment are not inherently cumulative when differential emissions are calculated based on just on “with scheme” and “without scheme” models (the inclusion of the scheme, or not, being the only element of difference). The reason is that even if planned changes to the highway network and foreseeable third-party developments are included in each model (input to the calculation), their effects (“influence”) on carbon emissions are cancelled out by the subtraction process. This is also clear by considering Tables 1, 2 and 3 above.
- 57 The Applicant appears to have taken this PINS Advice note which had actually not considered the issue of cumulative carbon assessment, and tried to apply it to their case. In referring to its relevance “*in general terms*”, they are frankly scrapping the bottom of the barrel looking for possible support for their case in the note.
- 58 I conclude that Planning Inspectorate’s Advice Note 17 gives no support to the Applicant’s claims in REP8-013, and I strongly suggest the ExA and SoS must also conclude that no weight can be applied to the note.

3.4 [REP8-013] Section 5 – Compliance with Various Carbon Budgets and Wider Carbon Policies

- 59 The Applicant fails to identify that the NZS now provides a sector specific target for surface transport under UK Climate Change legislation. It has also failed to withdraw its previous assertion that there is no sector specific target for transport.
- 60 Despite the very clear material relevance of the NZS to appraisal of carbon in road schemes, as outlined above, the Applicant has failed to mention the NZS (and TDP) targets, indicative delivery pathways, for surface transport. As described in the NZS

¹⁴ [REDACTED] accessed 18th March 2022

section above, with the NZS, the Climate Change Act becomes a material consideration for this scheme, and this is supported by NPPF 153, footnote 53.

3.5 [REP8-013] Section 6 – Assessment of Likely Significance Effects

61 Under the same heading “**How an Assessment was Undertaken to Evaluate the Impacts of the Scheme Including Consideration of Likely Significance Effects**”, the response [RESP-8.122] from the Applicant on the A38 Derby scheme provides substantial new information and data, including:

- A. New data for the A38 Derby scheme has been calculated by a re-run of the traffic models with a new version of the Emission Factor Toolkit (EFT) (version 11) (EFT v11) release on 19th November 2021). This EFT update is notable because, for the first time, the EFT now includes data relating to the UK vehicle fleet and associated emissions for the period between 2031 and 2050 inclusive.
- B. Directly quoted from RESP-8.122: “*The DfT has advised National Highways that a sensitivity test based on the impact of the policy measures set out in TDP can now be undertaken for schemes. The DfT has approved a sensitivity test based on the rate of improvement shown in Figure 2 of the TDP which can be applied to CO_{2e} emissions calculated for the Scheme assessment.*”
- C. A new table [RESP-8.122, Table 1] is presented which provides a solus quantification, and provides TDP (upper bound) and TDP (lower bound) data although no assessment is made, not any conclusion drawn from the data.

Other new data is listed in footnotes to the Table, including maintenance and energy use calculations have also been updated using the National Highways Carbon Emissions Calculation Tool v2.4 (2021) for embodied carbon, the latest set of BEIS carbon factors (2021) for transportation, and electricity use accounts for decarbonisation of the national grid using the latest BEIS projected grid factors.

- 62 Despite the A47THI still being in Examination, the Applicant has made no attempt to make a similar update of the carbon quantification and assessment data, **even though the DfT is now requiring the new approach of a TDP Sensitivity Test**, and it has been provided on the A38 Derby Junctions scheme.
- 63 The consequence of failing to provide the data now in the Examination period is that the ExA, and SoS, will be required to consult further on the scheme, when the Environmental Statement has been updated with the new data sets and with a TDP Sensitivity Test in the post-Examination period. The ExA, and SoS, are requiring this information on other schemes, and they cannot make a legitimate decision on this scheme and application until this new information is provided.

3.6 [REP8-013] Section 7 – Compliance with the Environmental Impact Assessment Regulations

64 I have already made it abundantly clear that the Application does not comply with the Environmental Impact Assessment Regulations, please see REP5-030, section 3.4.

65 Please note from that section, the matter here is not about **either** the EIA Regulations “winning over” the NPS NN, **or** the reverse of the NPS NN winning over the EIA Regulations. The ExA and SoS are required to take account of, and apply, both pieces of legislation (ie it is an **and-and** situation).

4 RESPONSE TO APPLICANT’S [REP8-012] – OUT OF DATE TRAFFIC MODEL

66 At REP8-012, section 6, reference 2, in response to Mr Richard Hawker, the applicant states that different traffic models (meaning the NATS 2015 model used on the A47THI, and the NATS 2019 model used on the Norwich Western Link by the local transport authority, Norfolk County Council) use “*a different combination of road network links, which explains the difference compared to the change identified by the Applicant*”.

67 The fundamental issue here is that there exist for the study area of the A47THI scheme, two different models, **and the Applicant is using one which is four years older in terms of the baseline conditions and its calibration against live data for the A47THI scheme.**

68 There is also evidence that the two models give different outputs on vehicle kilometres and carbon emissions in the network. Without further data and algorithmic transparency (please see section 6 of REP5-030, “Transparency of Computer Modelling” for more on this) from both the Applicant and Norfolk County Council, it is not possible to clarify this, although the applicant has said in REP8-012 that a *different combination of road network links* exists between the models.

69 The Applicant has not sought to resolve this issue further, nor provide data and algorithm details which would provide clarification for the SoS, ExA and for the public. I therefore submit the following statement which includes questions which must be resolved before a legitimate decision can be made on the scheme.

70 Again, the lack of providing information in the Examination period may now result in the need for further consultation and updates to the Environmental Statement.

4.1 Statement on out-of-date traffic modelling

71 The Secretary of State must be certain, in deciding this Application, that the Environmental Statement is accurate and up to date. Currently, the Applicant insists on continuing to use a traffic model (NATS 2015, baseline year and traffic model calibration

at 2015) for the A47THI which has been superseded by the local transport authority (NCC) with the NATS 2019 model (baseline year and traffic model calibration at 2019).

Why is the Environmental Statement based on an out-of-date traffic model when four years more up to date one exists?

- 72 The Applicant must be transparent as to the reasons why they have chosen not to base their traffic modelling on the more up-to-date model which the local transport authority has adopted for a close-by Large Local Major scheme, presumably because they have established that, in their view, it is a better representation of the traffic network. Without transparency on this matter, the Secretary of State cannot make a legitimate decision.
- 73 APP-125, Figure 4.11 shows the NATS DM network, and APP-125, Table 4.3 shows the schemes in the traffic network modelling. The area modelled covers the A47BNB scheme to the East and the A47NTE and NWL schemes to the West. The NWL documentation also shows that the same NATS Traffic modelling area is used for the NWL modelling. **So essentially the area modelled for the A47THI scheme, and each of the A47BNB, A47NTE and NWL scheme, is the same or very similar geographically.**
- 74 This means that **the A47THI has already been modelled in the NWL NATS 2019 model.** Yet this more up-to-date modelling is not available to the Examination, and to the ExA and the SoS. It is simply not legitimate to say that the issue of a more up-to-date traffic model existing does not apply in considering the modelling of the A47THI. It does exist, and it does apply. It should be available to this Examination. **The question remains why does the Applicant continues with a model of the same (or very similar) area at a baseline of 4 years earlier and therefore out of date?**
- 75 The water is very much muddied by the Applicant's statement at REP8-011, page 6 (PDF 10), bullet 2 that differences in outputs of the NATS modelled area between NATS 2015 and NATS 2019 has resulted due to using a "different combination of road network links". The Applicant has not been transparent in providing to the ExA what the different combination of road network links is. The full definition of the combination of road network links for each of NATS 2015 and NATS 2019 should be made available to the Examination, or now to a further consultation post-examination.
- 76 **Without this information, it is not possible to know how the modelling of the A47THI would be affected if it were modelled in the more up to date NATS 2019 model.** It is therefore not possible to consider that the Environmental Statement as being up to date. Further, the traffic reductions across the NATS area implied by the local transport authority's NATS 2019 modelling has major impacts on the economic and other cases for the A47THI which have not been examined at all in the examination (see section 5 too).
- 77 It cannot be legitimate for the Secretary of State to make a decision on this scheme when the Environmental Statement and Case for the Scheme is based on old data and modelling, and no reason has been provided by the Applicant to continue with the old model in light of the existence of an updated model which clearly has already been run including the scheme.

5 QUANTIFICATION OF ECONOMIC COSTS OF CARBON

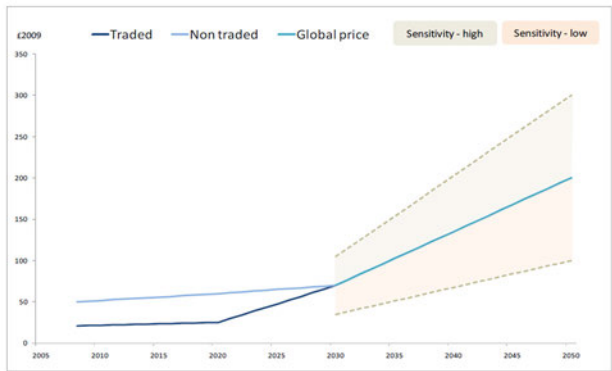
5.1 Background to carbon pricing for appraisal

78 This section gives a very brief overview of the relevant methodology. I have noted above in section 1.2 that new guidance and carbon pricing values for appraisal were published by the Government in September and October 2021, followed by an update of the DfT WebTAG guidance and TAG data book. The BEIS Carbon Pricing Policy Paper “Valuation of greenhouse gas emissions: for policy appraisal and evaluation” (published 2 September 2021) is given **in Appendix A**.

79 In 2011, the previous approach (before the policy changes outlined above, and reflected in the Application) of working towards a fully working carbon market was outlined by BEIS’ predecessor department DECC¹⁵.

“In the short term (up to 2030), different targets in the Traded (ETS) and Non-Traded (non-ETS) sectors imply that emissions in the two sectors are essentially different commodities and the approach to valuing carbon needs to reflect this reality. Therefore, traded and non-traded carbon values will be used over the 2008-2030 period (Chart 1). Beyond 2030, a fully working global carbon market is assumed implying a single carbon value for economic appraisal over the 2031-2050 period ...

Chart 1: Traded and Non Traded carbon values (2008-2050)



80 The latest Green Book supplement updates the method to recent Government policy on climate change, and the UK Emissions Trading Scheme, and “to give equal weight to emissions from the traded and non-traded sectors”¹⁶. This means that from 2020 traded

¹⁵ DECC publication, 2011, “Guidance on estimating carbon values beyond 2050: an interim approach”,

¹⁶ See “Traded and non-traded carbon” under “Valuation of greenhouse gas emissions: for policy appraisal and evaluation”, September 2nd 2021 at

and non-traded emissions are equally valued, as shown in the graph below, in the latest carbon pricing figures are shown below graphically as clipped from the policy paper guidance (reproduced in Appendix A).

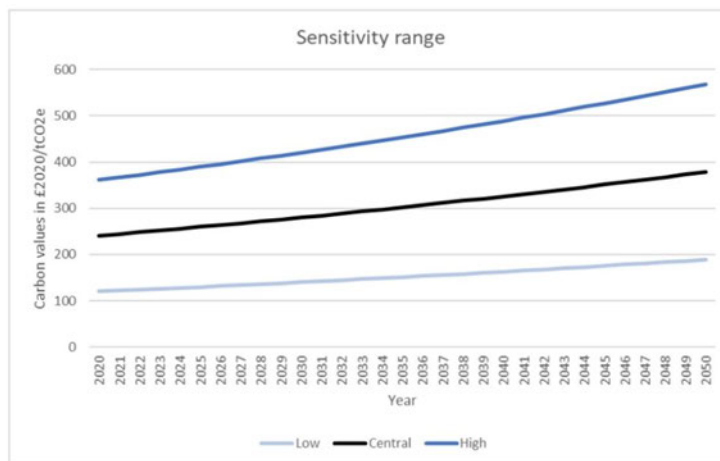


Figure 3: Sensitivity range of the updated carbon values.

- 81 Note that previously 60-year appraisals of road schemes have split the carbon emissions into the traded and non-traded sectors, with fossil fuel vehicles being non-traded and electric vehicles being traded. The fossil fuel vehicle / non-traded sector has been the numerically predominant sector in the appraisal data.
- 82 It can be seen that the new carbon prices are significantly greater than the previous ones. For example, for the predominant non-traded sector, the 2020 carbon price in the new policy data is c. £240/tCO₂e compared to of c. £60/tCO₂e on the previous data (ie 4 times greater).
- 83 The rationale for the change in carbon price is given in the policy paper, from Department of Business, Energy and Industrial Strategy (BEIS) “*Valuation of greenhouse gas emissions: for policy appraisal and evaluation*”, published 2 September 2021 and provided **in Appendix A**. BEIS has conducted a review and update of the carbon values because several factors have changed since the last review, the most significant of which are the following:
- i. Changes in international climate change targets, especially the Paris Agreement of 2015 and the new temperature target to limit global overheating to 1.5°C.
 - ii. Changes in national targets including the UK 2050 net-zero target.
 - iii. The introduction of a UK Emissions Trading Scheme (UK ETS) in January 2021 following Brexit.

5.2 Further issues with the economic valuation of carbon

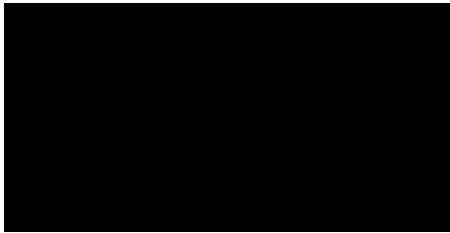
- 84 The changes in carbon pricing outlined above require a revision of the BCR and the case for the Scheme. However, there are further issues which also need addressing in the required recalculation as follows.
- 85 The traffic model should be updated with the substantive new data updates enumerated in section 3.5, and already generated for the A38 Derby scheme [eg: Emission Factor Toolkit (EFT) (version 11)].
- 86 The traffic model should be updated to the more up-to-date model used by the local transport authority ie: NATS 2019.
- 87 **Construction emissions** should be included on the cost side of the BCR.
- 88 A **solus differential quantity of carbon emissions** should be calculated based on Table 2 above ie: based on the environmental impacts of adding the road to the existing environmental baseline.
- 89 A quantification of the [full] **cumulative carbon emissions** should be calculated based on Table 3 above.
- 90 Sensitivity tests should be calculated of the **cumulative carbon emissions of the three A47 schemes taken together**. (A special case sub-set of the full cumulative carbon emissions associated with the scheme).
- 91 For the full economic cost of the greenhouse gases associated with the road requires that the quantification of **cumulative carbon emissions** is also taken forward into the calculations. (ie the full **cumulative carbon emissions**).
- 92 **I respectfully suggest that because the Applicant has failed to consider any of this and make it available to the Examination, that SoS and ExA will now have to require this information under EIA Regulations 20.**
- 93 In summary, the economic case for the road remains completely flawed, and reliable for a safe determination of the Application, until it is updated for:
- A. The new carbon pricing data
 - B. Construction emissions (on cost side)
 - C. The up-to-date NATS 2019 traffic model
 - D. The full cumulative carbon emissions calculated in compliance with the EIA Regulations

6 CONCLUSIONS

94 In brief:

- A. The application does not comply with EIA Regulations on cumulative carbon assessment.
- B. The application does not comply with recent legislation and policy, particular the Transport Decarbonisation Plan and the Net Zero Strategy. This non-compliance also means that it does not comply with the Climate Change Act, nor the National Planning Policy Framework.
- C. The Climate Change Position Statement [REP8-013] is riddled with flaws.
- D. No consideration has been given to the special case of the three A47 schemes, all sharing the same study area and in close proximity to each other, progressing in parallel through DCO Examinations. The clear opportunity afforded by a common transport model, and study area, to generate a cumulative carbon emissions assessment across these three schemes has not been grasped.
- E. Out-of-date models, data and assessment methods are used in the traffic models and the Environmental Statement.
- F. The economic case, and the Benefit Cost Ratio (BCR), are out-of-date, and need to be recalculated against the new carbon price data, and revised traffic modelling which corrects all the instances of out-of-date data.

95 The application should be refused on all these grounds.



Dr Andrew Boswell,
Climate Emergency Policy and Planning, March 18th, 2022

7 APPENDIX A: BEIS CARBON PRICING POLICY PAPER

Policy paper, Department of Business, Energy and Industrial Strategy (BEIS)
“Valuation of greenhouse gas emissions: for policy appraisal and evaluation”
Published 2 September 2021

Supplied as separate document

8 APPENDIX B: TDP

Transport Decarbonisation Plan, published July 14th, 2021

Supplied as separate document

9 APPENDIX C: NZS

Net Zero Strategy, published 19th October 2021

Supplied as separate document

**10 APPENDIX D: A38 DERBY JUNCTIONS [TR010022] Volume 8.122, APPLICANT’S
RESPONSES TO THE SECRETARY OF STATE’S CONSULTATION LETTER
ISSUED 7TH JANUARY 2022 [RESP-8.122]**

Supplied as separate document